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The Oil Man's Calendar

SEPT. 14–16	National Petroleum Association, Hotel Traymore, Atlantic City.
29	Interstate Oil Compact Commission, Mayo Hotel, Tulsa, Oklahoma.
27 to Oct. 2	American Association of Petroleum Geologists, Mid-Year Meeting, El Paso, Texas.
OCT. 5–7	American Institute of Mining & Metallurgical Engineers, Fall Meeting, Petroleum Division, Plaza Hotel, San Antonio, Texas.
10–13	North American Gas Tax Conference, Tulsa, Oklahoma.
10–14	American Gas Association, Atlantic City, New Jersey.
10–14	National Safety Congress, Petroleum Section, Stevens Hotel, Chicago.
12–13	Indiana Independent Petroleum Association, Hotel Severin, Indianapolis, Indiana.
18	National Stripper Well Association and Oklahoma Stripper Well Association, Annual Meetings, Tulsa.
19–21	Independent Petroleum Association of America, Tulsa, Oklahoma.
20–21	American Institute of Mining & Metallurgical Engineers, Petroleum Division and Industrial Minerals Division, Los Angeles, California.
27–29	Annual Convention, Texas Division, Mid-Continent Oil & Gas Assn., San Antonio, Texas.
NOV. 3–4	American Association of Petroleum Geologists, Pacific Section, Los Angeles, California.
14–18	American Petroleum Institute, (Annual), Stevens Hotel, Chicago.
DEC.	Mid-Continent Oil & Gas Assn., Standing Tax Committees, Dallas.

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This Week's Panorama

THE Industry is confronted again with an old problem that gave it much trouble several years ago: Insecurity of crude production control in East Texas, the world's most prolific oil field.

Less favorable conditions in the industry at last threaten to force a showdown regarding the validity of East Texas proration, which was allowed to go unchallenged under larger allowables and better prices.

East Texas Proration Attacked

The existing proration program in East Texas was attacked last week when Rowan & Nichols Oil Company at Fort Worth filed suit in federal court at Austin, requesting a hearing by a three-judge court.

The company contended that the present proration order was unfair because of being based solely on well potentials, without consideration of acreage of tracts or the thickness, porosity, and permeability of the oil sand.

Under the existing order, allowing each well a daily output of 2.32 percent of hourly potential production, it was contended, the complainant was not recovering the oil lying under its five wells on a 25-acre lease in the Castleberry Survey, Gregg County.

The objection was made that the present proration plan does not consider density of drilling, and consequently, "an operator having one well on one acre may recover daily and ultimately 10 times as many barrels of oil per acre as the operator of an adjoining lease which is drilled to a density of only one well to 10 acres, although the amount of recoverable oil per acre under each lease is the same."

It was stated that the Texas Railroad Commission, which administers oil regulation, granted a drilling permit on a 1/10-acre strip immediately south of the complainant's lease and that the owner of the lease on the strip is being permitted to produce 22.3 barrels of oil per day from the well drilled on it, which is as much as the complainant is allowed to produce from any of five wells.

On hundreds of wells in the East Texas field, the petition said, the commission has authorized the drilling of an average of one well to one acre. "For many of these tracts," it continued, "production has been far in excess of the amount of oil which underlay some and by reason of the plan of proration, said tracts, and particularly those to the east of complainant's lease, have as much oil under same as originally was there."

The suit was brought in federal court on the contention that the complainant was being deprived of property without due process of law, in violation of the Constitution of the United States. The company said it had asked the railroad commission for relief last February but had not been able to obtain it.

Shortcomings of Proration Cited

Outwardly, there have been some indications of difficulties in the petroleum industry, including recent crude price reductions, declines of gasoline prices, proration of purchases by pipe line companies, and discontent over curtailed allowables.

But the surface indications have not, perhaps, revealed the full significance of the difficulties.

This was indicated, at any rate, by the latest report of Russell B. Brown of Washington, general counsel for the Independent Petroleum Association of America, to Charles F. Roeser, president of that association, and an independent operator of Fort Worth.

The report embodied the theme that proration in its existing form was inadequate and only partially successful, and that it should be supplemented by regulation of imports and storage withdrawals as well as a coordination of proration as between states, pools, and producers within pools.

The proposition was offered that each producer, wherever situated, should receive each day his ratable share of the day's market and the prevailing market price.

Toward that end, it was stated, there should be adequate control of imports and storage withdrawals, equitable allocations among states and among pools within the states, and ratable takings within individual pools.

Yet proration as it now obtains controls production without empowering any Public Authority to assure the needed equity, fairness, and ratable takings to all concerned, particularly those producers least able to protect themselves.

The point was made that all this control could not be exercised by state commissions or even by a state compact; that only a federal agency could make the control complete.

The report did not advocate federal control of the industry, but did intimate that some degree of federal control eventually might become imperative, unless warded off by the purchasing companies, which were urged to assume responsibility for protecting all producers.

The purchasers must work toward that end, it was asserted, or else proration will fail and federal control must come.

At the same time, the report conceded that the purchasers are handicapped by the federal govern-

ment's anti-monopoly drive, which has made the industry nervous and uncertain about the law. Deplored was the uncertainty as to whether purchasers could legally discuss among themselves the matter of fair and ratable takings as among states, pools, and producers in individual pools. But the suggestion was made that purchasers at least could individually look at their own situations and the general situation and formulate their own independent policies toward providing fair, equitable, and ratable purchases.

Such purchases must be assured, according to the report, if the rights of the producer are to be protected and if the system or principle of proration is to long endure.

Companies Lose Again in Mexico

The expropriation of Mexico's oil industry has moved forward another important step, and the outlook for the claims of the foreign-owned oil companies has not improved.

A ruling last week by the Mexican Supreme Court means that the government will deduct 150,000,000 pesos (about $30,000,000) from the amount it owes the companies in payment for their properties.

The court denied application of the companies for an injunction against a ruling by the Board of Conciliation and Arbitration, requiring them to pay wage increases. The board had acted legally, according to the decision.

The court held that the companies had broken their collective contract and upheld the assessment against them for three months' wages for 18,000 employees, deprived of their jobs, plus 20 days' pay for each year of service.

Even more significant than the ruling of the Supreme Court was the latest note of the Mexican government to the United States Secretary of State, in reply to the latter's insistent note of August 22. The Mexican government in its note refused to set up a sinking fund to pay for American-owned lands seized by Mexico under its agrarian laws. It also declined to promise that it would cease seizures of such lands pending arrangements for prompt payment.

The Mexican government even declared that there was precedent internationally for repudiation of compensation, although it did not reject eventual payment in theory. The precedents referred to were abandonment of the gold standard and devaluation of the currency in some countries. It was not mentioned that the United States was among the countries that had taken such steps, but those measures were described as "confiscation pure and simple."

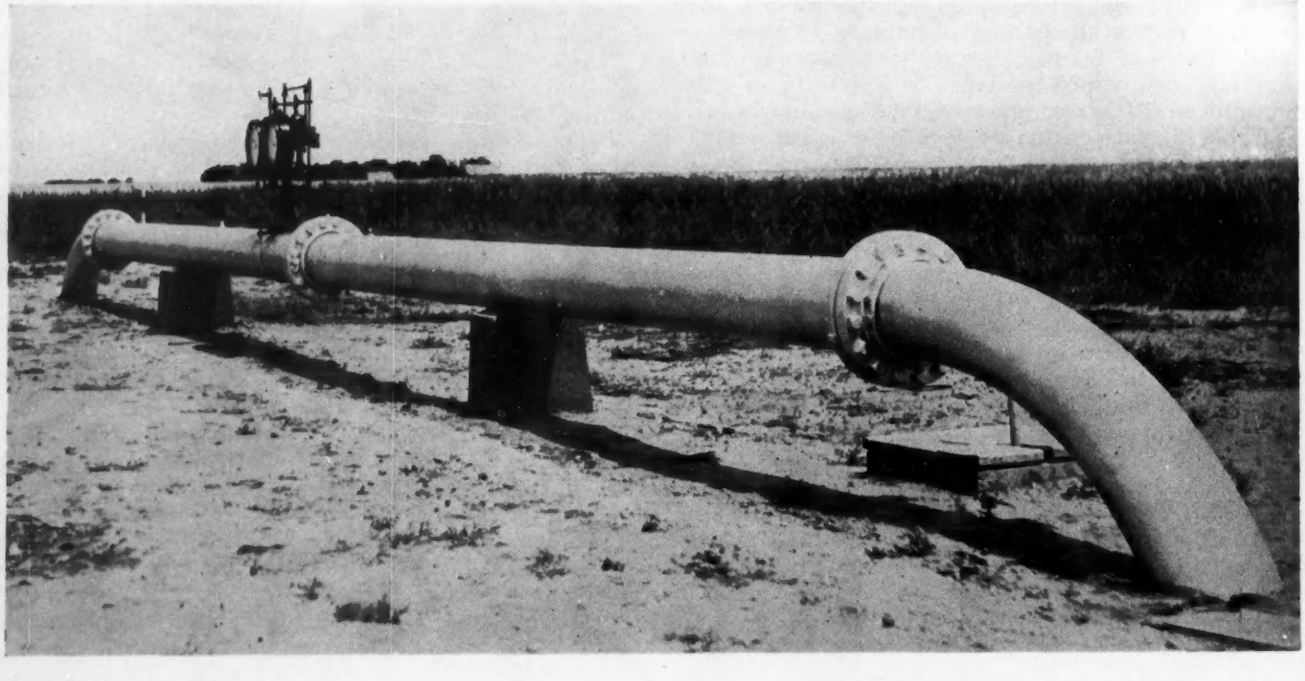
Hinting strongly that the Mexican government contemplates substitution of confiscation for compensation were these words of Foreign Minister Eduardo Hay:

"Numerous nations, in reorganizing their economy, have been under the necessity of modifying their legislation in such manner that the expropriation of individual interests nevertheless does not call for immediate compensation and, in many cases, not even subsequent compensation.

"There are numerous examples of nations," he continued, "whose cultural progress is beyond discussion, which have seen themselves obliged, without repudiating the right of property in the abstract, to issue laws which have signified expropriation without immediate payment and sometimes without later compensation.

"Countries might be mentioned which, under pressure of reasons considered to be of public necessity, have forced private individuals to exchange their gold and gold certificates for money which has already been depreciated, or which was depreciated immediately afterward."

Claims of Americans in controversy under Mexico's agrarian laws total only about $10,000,000. But the outcome of the controversy over the lands might directly affect the greater claims of the oil companies for the properties taken from them.



Dual meter manifold and run measuring gas on discharge of treating plant. Two meters, instead of one, are used to obtain correct differential recording where the load variation is extreme.

Present Proration and Well Spacing Programs Distort Equitable Recoveries

By ALEXANDER B. MORRIS,
Petroleum Engineer

In The OIL WEEKLY for August 1, 1938, A. W. Walker presented a very complete and well documented statement of the legal situation of the small tract under proration, as it is affected by existing acts of legislature, court decisions and administrative orders. Although directed particularly at the small tract, Walker's article also makes very clear the duties of the regulatory bodies, and the rights of individual operators and owners in the application of the police power of the state in preventing waste of the natural resource. This article starts where Walker left off, and will show the effect of one factor—indispensable for all proper programs of proration as he has sketched them—which has never been given any consideration in any proration formula, in Texas or elsewhere. It may be that neglect of this essential factor is one of the reasons for such general dissatisfaction with whatever program has been promulgated.

FROM an engineering point of view, there can be no adequate substitute for complete unitization of every common source of supply. The attainment of this ideal objective will probably be impossible in many, if not in most cases, and is unquestionably impossible in fields which have already advanced far in their development. Since its discovery, the East Texas field has presented well nigh insuperable obstacles to the proration machinery of the State of Texas, and the really surprising feature of the whole situation is that it has been kept as well in hand as it has.

As present land boundaries played no part in the accumulation of oil deposits, so good engineering practice can pay them no heed in recovering the oil. The most efficient and thorough development and operation of any field is not, except by sheerest accident, a program which will produce from each well just the amount of oil which originally underlay its particular drainage area. But this is just the duty placed upon owners, operators, engineers and state authorities, where unitization has not been effected. The field must be developed in such a way that each owner will recover the oil which nature caused to collect under his tract, and at the same time, without disturbing this fundamental requirement, operations must be so conducted that no oil is lost through improper methods. The situation is reminiscent of a problem question put to staff officers at the War College in Washington during the World War. Here is the question: "You have arrived at a location where it is essential that a large gin pole be erected. The pole is at hand, but there are no tools, no draft animals and no tackle. As company commander, what command do you give?" To which the correct answer is, "Sergeant, put up the gin pole!" In the present case, the courts and the legislatures are the company commander, the Railroad Commission is the sergeant, and the company engineers are the buck privates

who have to be the sergeant's hands in accomplishing the seemingly impossible. Of course the gin pole went up. Also, we will get good proration.

Because so much is known of sand conditions, reservoir pressures and water encroachment in the East Texas field, and also because proration conditions there are most acutely at variance with present applicable law, the following examples have been based upon an idealized section roughly approximating East Texas conditions. In detail, however, it is purely fictitious. Figure 1 illustrates this fictitious section cut across a sand body. The slice is 660 feet wide and 3 miles long, consisting therefore, of 24 10-acre tracts in a long row across the field. The sand is assumed to be of uniform texture throughout, to have a porosity of 20 percent, saturation of 100 percent, and a recovery factor of 34.66 percent. Tables 1 and 2 are concerned with withdrawals from such a section of sand body under strictly water-drive conditions, under which it is assumed that total withdrawal will be at such a rate as to prevent the formation of a gas cap, displacement being effected by water advancing from below, with the oil-water interface always horizontal. Penetration of the sand is zero plus, and the wells are cased just to the top of the pay. Tables 3 and 4 are concerned with withdrawals from such a sand body under strictly gas-drive conditions, under which it is assumed that withdrawal will be at such a rate that the gas-oil interface will always be horizontal, displacement being here effected by an expanding gas cap above the oil, the wells being cased clear to the bottom of the sand, so that all drainage is from the bottom of the pay, and the gas cap will not be dissipated. As we are not interested here in the total time required to exhaust the reservoir, it is immaterial at what actual rate, in barrels per day, the wells are allowed to produce.

For each type of field, two proration programs are illustrated, one providing equal allowables for all wells, and the other providing allowables that increase in the direction of increasing sand thickness. The first column of Tables 2 and 4 show the ratio of the allowable for each well to the marginal allowable for the field. In all tables, Case 1 assumes a uniform 10-acre spacing, with no exceptions; Case 2 assumes 10-acre spacing with a single exception in Tract M, upon which two wells are drilled; and Case 3 assumes 10-acre spacing with the single exception of Tract M, upon which four wells are drilled. It will be noted that save for the effect upon the recovery from Tract M, the drilling of one or three "unnecessary wells" works less hardship upon other owners than does the interaction of the position of the tract and the standard type of expulsive force. Hence it might be argued properly that there was little justification for shutting down such unnecessary wells through legal process on the grounds of injury to neighbors, as long as the proration formula imposed upon the area fails to reflect such salient factors as those herein set forth, and as long as tracts adjacent to the over-drilled areas are still permitted to make ultimate recoveries much greater than they are properly entitled to. An attempt has been made in setting the conditions for the construction of all these tables, to have them reflect nothing but the effect of reservoir configuration and relative position of the tract on the structure. In this way, the results can be modified to fit any actually observed local conditions of porosity, saturation, penetration, productivity index or whatever.

From a combination of the relationships here developed, with the information obtained from geological studies, from core analyses, from bottom-hole samples and tests, and from measurements of actual production, it should be possible to evolve a proration program which will meet all state requirements without doing violence to private property rights, and at the same time be in accord with good production engineering practice. A glance at the tables will reveal how tremendous is the effect upon ultimate recovery, of reservoir configuration and relative position in it, and will make clear immediately how inadequate to meet the demands of equity will be any proration system which ignores this element of the problem.

Let us first consider the water drive reservoir upon the basis of which Tables 1 and 2 are constructed. No other variables having been introduced, it is obvious that the failure of either of the proration plans illustrated to result in anything like

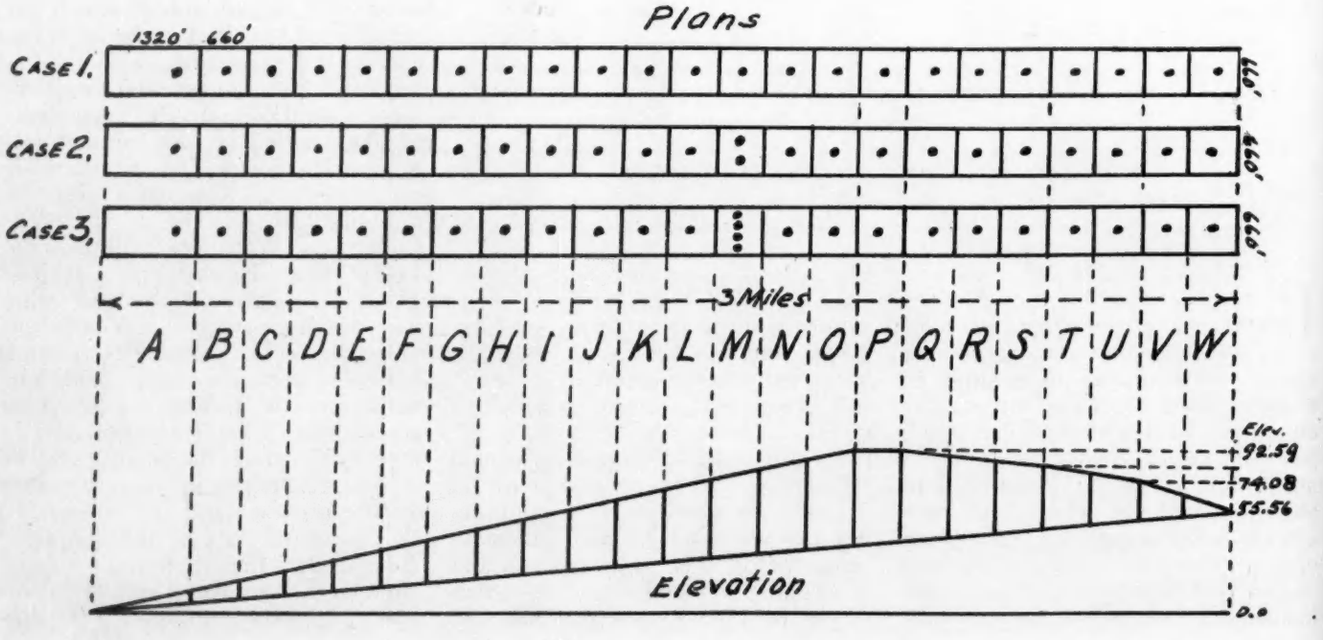


FIGURE 1

Idealized section forming the basis for the tables. Three plan views, one corresponding to each case, are shown.

TABLE 1

Tract Recovery — Water Drive

Equal Allowables—Simultaneous Completions

TRACT	Original Content Recoverable	CASE 1		CASE 2		CASE 3	
		No. of Wells	Recovery from Tract	No. of Wells	Recovery from Tract	No. of Wells	Recovery from Tract
A	37,500	1	2,293	1	2,197	1	2,028
B	46,875	1	6,554	1	6,273	1	5,778
C	65,625	1	13,251	1	12,666	1	11,638
D	84,375	1	22,626	1	21,594	1	19,790
E	103,125	1	34,962	1	33,313	1	30,443
F	121,875	1	50,588	1	48,116	1	43,837
G	140,625	1	69,889	1	66,346	1	60,243
H	159,375	1	93,327	1	88,405	1	79,980
I	178,125	1	121,452	1	114,773	1	103,418
J	196,875	1	152,333	1	143,580	1	128,815
K	215,625	1*	183,906	1	172,724	1	154,073
L	234,375	1*	215,168	1*	201,261	1	178,376
M	253,125	1*	246,489	2	458,694	4	806,622
N	271,875	1*	277,700	1*	260,558	1*	232,867
O	290,625	1*	308,894	1*	291,752	1*	264,061
P	293,750	1*	328,085	1*	310,943	1*	283,253
Q	272,917	1	316,558	1*	299,415	1*	271,725
R	243,750	1	299,929	1	282,787	1*	255,096
S	214,583	1	282,984	1	265,842	1*	238,151
T	181,250	1	262,254	1	245,111	1	217,420
U	143,750	1	237,158	1	221,053	1	194,869
V	93,750	1	199,396	1	186,923	1	166,244
W	31,250	1	149,204	1	140,674	1	126,273
23	3,875,000	23	3,875,000	24	3,875,000	26	3,875,000

* Recovery within plus or minus 15 percent of original content.

equitable recoveries is due solely to the fact that neither of them take any cognizance of the shape of the reservoir, the situation of the various tracts upon it, or the nature of the expulsive agent. Table 1, with equal allowables for all wells, approximates conditions as they are tending to become in East Texas. Table 2, with allowables increasing in the direction of increasing sand thickness, approximates East Texas proration as it has been administered during recent years.

Thus with equal allowables, regardless of the actual amount at which these may be set provided that total drainage is at such a rate that the oil-water interface is always horizontal, all the tracts on the low side of the field are severely penalized for the benefit of all the tracts on the high side. Wells drilled on tracts A, B and C will be unprofitable wells in any event, there not being sufficient oil in place under any of them to warrant the expense of a well. But Tract D will recover from its well only 22,626 out of a total original recoverable content of 84,375 barrels, or 26.8 percent of the oil which is the property of the owner of that tract, and which was, in itself, quite sufficient to warrant the drilling of a well for its recovery. Thus the owner of Tract D here would have 73.2 percent of the oil for which he drilled drawn out from under his feet by all his neighbors further up the structure. Tract W, on the other hand, originally contained but 31,250 barrels of recoverable oil. The single well on this tract will recover, under our assumed conditions, a total of 149,204 barrels or 475 percent of the oil which properly belongs to the owner of that tract. Such disparities are much greater than need be countenanced in such a problem, even where exact data are difficult to obtain. Of all the tracts in this section, only Tracts K to Q—7 out of 23—will recover substantially the same quantity of oil as was originally in place, recoveries here varying from 85 percent in the case of Tract K, to 116 percent in the case of Tract Q. For the purpose of this discussion, if the recovery from a tract is within 15 percent of the quantity originally in place under it, substantial accuracy has been attained.

Where, as has been the case thus far in the East Texas field, well allowables have increased roughly in the direction of thickening of the sand, and approximately as shown in the first column of Table 2, the situation is even worse. Here only Tracts K to P—6 out of 23—make substantially equitable recoveries, and then only by stretching our tolerance to 83 percent for Tract K and to 121 percent for Tract P. The effect upon the tracts situated low on the structure is even more damaging, as may be seen by comparing Case 1 in the two Tables, 1 and 2.

Unnecessary wells are those which are in excess of what would be required to completely drain the reservoir. In Case 2 and Case 3 in Tables 1 and 2, additional wells are drilled on Tract M. Where equal allowables prevail—Table 1—there will be recovered through the two wells on Tract M in Case 2, 458,694 barrels, whereas only 253,125 barrels originally underlay that tract. Each of these two well owners will recover 181 percent as much oil as is strictly his property. Who suffers? All the rest of the field. Tract L now recovers but 80 percent of its allocable oil and is thus outside our limit of tolerance. Tract R is also just outside it with a recovery of 116 percent. Tracts N, O and P alone make substantially equitable recoveries.

Case 3 in each table shows the effect of drilling four wells on Tract M. Here each of the four wells, where equal allowables prevail throughout, will recover 216 percent

TABLE 2

Tract Recovery — Water Drive

Unequal Allowables—Simultaneous Completions

TRACT	Ratio of Allowables	Original Content Recoverable	CASE 1		CASE 2		CASE 3	
			No. of Wells	Recovery from Tract	No. of Wells	Recovery from Tract	No. of Wells	Recovery from Tract
A	1.00	37,500	1	1,726	1	1,645	1	1,505
B	1.00	46,875	1	4,899	1	4,665	1	4,258
C	1.00	65,625	1	9,824	1	9,345	1	8,513
D	1.05	84,375	1	17,462	1	16,589	1	15,081
E	1.10	103,125	1	28,023	1	26,587	1	24,116
F	1.15	121,875	1	42,030	1	39,819	1	36,030
G	1.20	140,625	1	60,095	1	56,842	1	51,292
H	1.25	159,375	1	82,936	1	78,304	1	70,444
I	1.30	178,125	1	111,411	1	104,975	1	94,116
J	1.35	196,875	1	144,142	1	135,507	1	121,033
K	1.40	215,625	1	179,196	1	167,938	1	149,248
L	1.45	234,375	1*	215,760	1*	201,476	1	178,040
M	1.50	253,125	1*	254,090	2	473,250	4	828,882
N	1.50	271,875	1*	284,436	1*	266,509	1*	237,567
O	1.55	290,625	1*	324,620	1*	306,094	1*	276,187
P	1.60	293,750	1	354,282	1*	335,159	1*	304,282
Q	1.60	272,917	1	342,755	1	323,632	1*	292,760
R	1.55	243,750	1	315,843	1	297,318	1*	267,411
S	1.50	214,583	1	289,517	1	271,590	1*	242,647
T	1.45	181,250	1	260,505	1	243,175	1	215,199
U	1.40	143,750	1	228,619	1	212,818	1	187,167
V	1.35	93,750	1	186,780	1	174,755	1	154,898
W	1.30	31,250	1	136,049	1	127,933	1	114,319
23	....	3,875,000	23	3,875,000	24	3,875,000	26	3,875,000

* Recovery within plus or minus 15 percent of original content.

TABLE 3

Tract Recovery — Gas Drive

Equal Allowables—Simultaneous Completions

TRACT	Original Content Recoverable	CASE 1		CASE 2		CASE 3	
		No. of Wells	Recovery from Tract	No. of Wells	Recovery from Tract	No. of Wells	Recovery from Tract
A	37,500	1	271,119	1	263,443	1	250,195
B	46,875	1	256,119	1	248,443	1	235,195
C	65,625	1	244,869	1	237,193	1	223,945
D	84,375	1	234,869	1	227,193	1	213,945
E	103,125	1	225,494	1	217,818	1	204,570
F	121,875	1	216,493	1	208,818	1	195,570
G	140,625	1	207,743	1	200,068	1	186,820
H	159,375	1	199,172	1	191,497	1*	178,249
I	178,125	1*	190,734	1*	183,059	1*	169,811
J	196,875	1*	182,401	1*	174,776	1	161,478
K	215,625	1	174,151	1	166,476	1	153,228
L	234,375	1	165,969	1	158,295	1	145,046
M	253,125	1	157,844	2	300,340	4	547,684
N	271,875	1	149,768	1	142,670	1	130,358
O	290,625	1	141,732	1	135,170	1	123,741
P	293,750	1	133,732	1	127,670	1	123,741
Q	272,917	1	125,763	1	120,169	1	110,364
R	243,750	1	117,822	1	112,669	1	103,614
S	214,583	1	109,905	1	105,169	1	96,828
T	181,250	1	102,010	1	97,669	1	90,010
U	143,750	1	94,136	1	90,169	1	83,162
V	93,759	1*	86,278	1*	82,669	1	76,287
W	31,250	1	78,437	1	75,169	1	69,387
Lost	.....	..	8,437	..	8,437	..	8,437
23	3,875,000	23	3,875,000	24	3,875,000	26	3,875,000

* Recovery within plus or minus 15 percent of original content.

as much oil as is properly his property; and where allowables vary as shown in Table 2, 326 percent. Tract L, with an original content of 253,125 barrels, will now produce but 145,046 barrels with equal allowables throughout, and 178,040 barrels with varying allowables. Compare now the position of the owner of one or more wells on Tract M, with that of the owner of Tract W. Where equal allowables are assigned, Tract M will recover from one well substantially what originally underlay Tract M—246,489/253,125, or 97.4 percent. Tract W under the same conditions will produce 149,204/31,250, or 457 percent. If Tract M belongs to two owners, each of whom secures a permit for one well, each of these owners will recover from his well 458,694/253,125, or 181 percent as much oil as belongs to him, while the owner of Tract W will still be away ahead with a recovery of 140,674/31,250, or 450 percent. If Tract M is the property of four owners, each of whom drills a well on his 2.5 acre plot, each of these four owners will recover 806,622/253,125 or 318 percent as much oil as originally underlay his 2.5 acre plot, while the owner of Tract W will recover 126,273/31,250 or 403 percent. Tract M has been overdrilled four to one, so that it will produce more than three times as much oil as originally underlay it, but Tract W, notwithstanding that there is but one well on it, will produce over four times as much oil as originally underlay it. Although the owner of Tract W will recover less oil as a result of the over-development of Tract M, he can hardly be said to have suffered because of it, as long as he can recover four times as much as he is entitled to merely from his position on the reservoir. The operators who suffer here are those to the west of Tract M, but since, in any event, Tract W will recover from four to nearly five times its proper share of the total reservoir content, it would be hard to state that they were greatly injured by the increase in the recovery from Tract M from a proper recovery to something more than three times that amount.

The foregoing comparison is even more striking when made on the basis of Table 2, with varying allowables. Table 1, with equal allowables throughout was purposely selected for discussion lest it be thought that the choice of allowables was chiefly responsible for the inequities disclosed. This is not the case, however, and very large differences would have to be made in the relative allowables, and these differences applied in a most unconventional manner, in order to smoothe out these very large differences, which are attributable solely to reservoir configuration and relative position on the structure.

These relationships suggest the urgent necessity for a comprehensive survey of every field wherein development has progressed to a point where adequate information is available, with a view to revising proration programs so as to produce results more nearly in line with the rights of the parties and the proper exercise of the police power of the state. This applies with even greater force to strictly gas-drive reservoirs, as we shall see from a study of Tables 3 and 4, and as there are probably more fields in which gas-drive is the chief expulsive agent, the following part of the discussion may have a wider application than that which has gone before.

Referring to Tables 3 and 4, it

TABLE 4

Tract Recovery — Gas Drive

Unequal Allowables—Simultaneous Completions

TRACT	Ratio of Allowables	Original Content Recoverable	CASE 1		CASE 2		CASE 3	
			No. of Wells	Recovery from Tract	No. of Wells	Recovery from Tract	No. of Wells	Recovery from Tract
A	1.00	37,500	1	227,572	1	220,907	1	209,502
B	1.00	46,875	1	212,572	1	205,907	1	194,502
C	1.00	65,625	1	201,422	1	194,657	1	183,252
D	1.05	84,375	1	200,993	1	193,790	1	181,914
E	1.10	103,125	1	200,379	1	192,837	1	180,412
F	1.15	121,875	1	199,439	1	191,659	1	178,527
G	1.20	140,625	1	198,110	1	189,962	1	176,306
H	1.25	159,375	1	196,364	1	188,205	1*	173,652
I	1.30	178,125	1*	194,190	1*	185,346	1*	170,569
J	1.35	196,875	1*	191,585	1*	179,078	1*	167,055
K	1.40	215,625	1*	188,549	1	179,088	1	163,111
L	1.45	234,375	1	185,087	1	175,278	1	158,741
M	1.50	253,125	1	181,207	2	342,118	4	615,806
N	1.50	271,875	1	171,206	1	161,929	1	146,174
O	1.55	290,625	1	166,805	1	158,026	1	143,029
P	1.60	293,750	1	161,973	1	153,665	1	139,403
Q	1.60	272,917	1	151,973	1	144,350	1	131,210
R	1.55	243,750	1	137,712	1	130,935	1	119,213
S	1.50	214,583	1	124,193	1	118,179	1	107,747
T	1.45	181,250	1	111,570	1	106,047	1	96,795
U	1.40	143,750	1	99,210	1	94,515	1	86,345
V	1.35	93,750	1*	87,683	1*	83,563	1	76,386
W	1.30	31,250	1	76,769	1	73,158	1	66,912
Lost	....	.....	..	8,437	..	8,437	..	8,437
23	....	3,875,000	23	3,875,000	24	3,875,000	26	3,875,000

* Recovery within plus or minus 15 percent of original content.

will be noted that, if the gas cap is conserved, the most favorably situated tracts on the structure will produce relatively less amounts of oil, and that those tracts which are least favorably situated will produce greatly excessive quantities. Very few tracts fall within the 15 percent belt of tolerance, as indicated by the asterisks. Tract W, which fared so well in a water drive reservoir, here recovers only a little more than twice as much oil as it is entitled to, instead of nearly five times as much. Tract P, the most favorably situated tract when judged by conventional standards, recovers substantially less than originally underlay it, even under a system of varying allowables that gives the well on Tract M an allowable of 1.5 times the field marginal. It thus will recover 161,973/293,750 of 54.8 percent. Tracts to the west of Tract J in both tables recover increasingly excessive percentages, as they advance down the structure, until, in the case of Tract A, under which there is insufficient oil to warrant the drilling of a well, a greater recovery than any other well in the field is shown. This merely throws in a somewhat different light what everyone has known for a long time, that gas-drive pools should be developed from the edge inward, the last wells to be drilled high on the structure with the general plan of converting them to gas wells in a short time. Where complete unitization is possible, this principle is followed. Where it is not possible, the state should step in with its proration machinery, to assure a more equitable ultimate take from the common source of supply.

It would be foolish to attempt here to suggest any particular proration program for any particular field. The writer has not the necessary data available. The following principles can be laid down however, as a result of these studies, for the construction of adequate programs for application where complete unitization is not practicable.

1. In a strictly *Water Drive* reservoir: Allowables on more favorably situated tracts should be held substantially below those for the less favorably situated tracts, judged from the point of view of reservoir configuration and relative position.
2. In a strictly *Gas Drive* reservoir: Allowables of the less favorably situated tracts should be held substantially below those for the more favorably situated tracts.
3. Total withdrawals, in either case, should be limited to the optimum amount judged from the standpoint of the best engineering practice in the operation of the field as a whole.

This last principle is at variance with the principle of marginal allowables. In the writer's opinion, this principle, which was established for the benefit of stripper wells, is vicious when applied to any large pool. In effect it guarantees a profitable well even though the tract may not overlie a supply of recoverable oil sufficient to warrant it. Walker covered the legal aspects of this in his article referred to previously. The present use of the marginal allowable is a perversion of an originally justifiable regulation, and results in many evils, not the least of which is encouraging excessive drilling, permits for which are granted without any consideration of the source of the oil to be recovered. Such excessive development makes much more difficult the maintenance of the rate of total withdrawal at a point consistent either with good operating practice or with market demand. If the exposition of facts outlined in this article will be effective, even in a very small measure, to a more judicious use of the principle of marginal allowables, the writer will feel that his time has been well spent.

There is another aspect of the relationships herein described, in which they are of considerable importance. That is, in the valuation of particular tracts. So far as the writer is aware, no valuation method in general use attempts to give the matter of reservoir configuration, and its influence upon tract recovery, any weight whatever. For example, most valuations in the East Texas field are made by the volumetric method. A tract is valued only on the basis of the recoverable oil estimated to underlie it. It would appear from the foregoing, that all west side tracts should have a heavy discount applied to them, purely as a result of their relative position on the section; that all tracts to the east of the greatest sand thickness, could properly be valued on a basis substantially greater than is customary. The nearest approach to such an adjustment is that generally made in respect to the recovery from very small tracts. In these cases, it is admitted that the wells will drain adjacent lands, and greater reserves are commonly assigned to them than are believed to underlie the tracts themselves. In the writer's opinion this is a perfectly proper adjustment to make, since under prevailing proration these wells will actually recover more oil than they are equitably entitled to. The Securities and Exchange Commission frowns upon this practice, and it is on record as considering it a "fatal defect" in an engineering report. The basis for this attitude on the part of the S. E. C. is that "present applicable law" in Texas makes such excessive recovery impossible. However, if the machinery for applying the "present applicable law" is known to be woefully defective, and if the wells as operated under this machinery will actually produce excessive quantities of oil, judged from the point of view of the equities involved, it would appear rather to be a "fatal defect" in an engineering report if it should fail to appraise such excess recoveries as a part of the reserves of the particular properties from which they will, with a probability almost attaining to certainty, be recovered. If regulatory practices are not revised in such a way as to take into consideration the very ponderous factors forming the basis of this discussion, it will continue to be in order for engineers to estimate reserves on certain tracts at figures which include such excess production. If, however, the regulatory authorities take steps to iron out the present existing inequities in the light of all available information about a field, the position taken by the S. E. C. will be justified.

In valuations controversies arise over such differences of opinion as to particular factors employed as between recovery factors of 35 percent or 40 percent; porosities of 22 percent or 25 percent; saturations of 60 percent or 70 percent. In the ideal reservoirs discussed above, differences of 500 percent result from nothing but reservoir configuration, and yet, heretofore this element has never appeared in an appraisal. The writer does not here advance the thesis that corrections of such magnitude will be appropriate in any particular case, but merely that a phenomenon which alone can so seriously distort equitable recoveries should be given due consideration in arranging programs of production control and in placing values upon individual properties.

GAS LOADING, STAGE TREATMENT AND CHEMICAL PLUGS HAVE IMPROVED

Gas Well Acidizing

By O. W. LYONS,
Dowell Incorporated, Borger, Texas

ACIDIZING has progressed and gained in importance during the past six years because of the adaptability of acid treatments to all conceivable types of well conditions. One of the most interesting variations in standard technique is that developed for the treatment of wells producing gas. This treatment is of importance and interest because of the results obtained and the ingenuity displayed in solving problems as they arose.

Acidizing gas wells first became of importance in the Monroe gas field of Northern Louisiana and during the last five years hundreds of wells have been treated with very satisfactory results. The treatment of gas wells has spread from Louisiana into practically all producing states in the Mid-Continent and has proven to be of particular value in the Texas Panhandle gas field and in the Hugoton gas field of Southwestern Kansas. This work in Texas and Kansas began during the summer of 1937 and has continued not only until the present time, but will remain as a standard production practice due to the results obtained.

Gas wells and oil wells are treated for the same reason, namely to increase production. The acid is introduced into the well and forced back into the formation where it is allowed to react with the walls of pores and channels in the rock. This chemical reaction changes limestone or dolomitic limestone into water soluble salts, carbon dioxide gas and water, all which are removed easily from the well by regular production methods. The increase in permeability thus obtained permits a greater flow of gas through the formation under existing pressure conditions and well production is increased by treatment.

In general, the acid used in the treatment of a gas well is the same as that used in the treatment of an oil well producing from a similar formation. The main difference between the treatment of an oil well and a gas well lies in the method and equipment used in treatment.

Gas Loading

When the gas well problem first presented itself, consideration was given to using an oil load to force the acid from the well back into the formation, but this method was never adopted because usually oil was not available within a reasonable distance of a gas field. Furthermore, the introduction of comparatively heavy oil into a formation containing only gas can do the formation no good and is liable to "gum it up" in such a way that permeability is decreased and negative or adverse results may be obtained in spite of the effect of the acid on the formation.

The use of water as a load on top of the acid has not only been considered, but is being used to a certain extent at the present time. However, practical and technical considerations have led to the almost universal use of gas as the agent for properly directing the acid into the formation. Gas well treating with gas loading is preferable because it produces better results, is cheaper, is more positive.

Figure 1 shows in diagrammatic form a typical Texas Panhandle well with casing set on top of the gas horizon and with no tubing or syphon pipe in the hole. It is a simple matter to pump acid into the casing head, letting the acid build up into the hole as shown in Part A. But pressure must be applied to the acid to force it rapidly out of the hole into the formation. This pressure must be sufficient to overcome both the rock pressure and the resistance to flow offered by the formation. This movement of acid must take place rapidly so that the acid will not all be spent in merely enlarging the diameter of the bore hole.

If a large water load is used as in Figure 1-B, the acid readily enters the formation and is pushed further out as the water column continues to settle. This condition, shown in Figure 1-C, allows the acid to be pushed far beyond the critical resistance area, permits large quantities of water to enter the formation, increases the by-passing of spent acid by the returning gas, and permits permanent blocking of fine pores by the viscous spent acid in areas far away from the well where pressure differentials are low.

Naturally, this can be changed by using less water load but equally apparent are the disadvantages of leaving some acid in the hole and insufficient penetration to cover the entire critical area. Figure 1-D shows the effect of insufficient water load.

The exact amount of water that should be used never can be accurately predicted as the load depends entirely on formation pressure and resistance

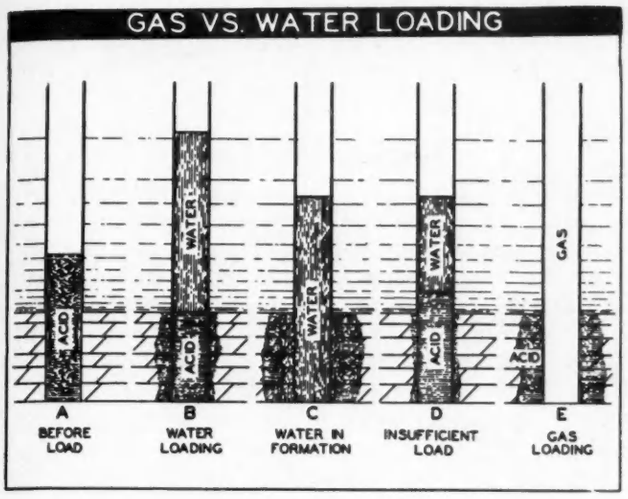


FIGURE 1

to flow. The former can be calculated from closed-in pressures but the latter is particularly hard to determine except by actual measurement, something not economically feasible.

In addition, there are many very practical difficulties involved in using water. Water is very seldom available at a gas well and usually it is necessary to lay a separate pipe line or haul in water from a considerable distance. The operator must add this expense to the cost of treatment.

In addition, all water and acid put into the well must be withdrawn. It is necessary to withdraw this acid very promptly in order to prevent the spent acid from lying in the formation for a great length of time with the consequent tendency for the spent acid to be drawn into the fine pores of the formation and stay there indefinitely. The use of water usually requires swabbing of the well following treatment to begin production inasmuch as the water column has completely balanced the hydrostatic pressure. Swabbing units are seldom available on wells and when they are brought in particularly for treatment, more expense is added to the cost of treatment.

Gas loading overcomes these disadvantages. The acid column in the well can be forced back into the formation at the desired rate and can be left at the proper point, as the acid-gas interface in the well is easily determined with a wire line. This permits forcing the acid all out of the hole but not pushing it so far back in that it will be lost and ineffective. Figure 1-E illustrates the use of gas loading.

To bring the acid out of the formation at the proper time when using gas load, it is merely necessary to open a valve and start producing the well. Only in rare cases is it necessary to assist the well by mechanical means following treatment.

Stage Treating

As gas is produced from a formation into a well, it is found that the formation resistance to flow of gas increases as the well is approached because of the geometric decrease in available channels for the gas to flow through. It can be shown from mathematical reasoning that this resistance to flow is a maximum right at the face of the well and decreases back to the edge of the drainage area. Therefore, it is necessary to penetrate the formation with acid a considerable distance away from the well but it is also necessary to concentrate the action of the acid reasonably close to the well and in the area of high resistance.

In the treatment of wells in the Texas Panhandle, it has been shown that the first thing necessary to insure good acidizing results is to prepare the formation properly for the treatment. This is made necessary by the fact that most of the wells are drilled in with cable tools and fine cuttings have been jammed into the walls of the hole. The face of the pay should be cleaned and this fine material removed before treatment proceeds, to eliminate the possibility of forcing insoluble material back into the formation. Acid is an ideal agent and for this reason it is best practice to clean the face of the pay with an acid treatment, using approximately one thousand gallons.

The hydrostatic pressure created by 1000 gallons of acid in 7-inch hole is less than 300 pounds. In most cases the rock pressure is sufficient to overcome a pressure such as this so the well is not killed by this initial stage. If the formation pressure is less than 300 pounds, less acid may be used. This initial stage has demonstrated its value by the large quantities of sludge removed by blowing the well after the acid has been allowed to clean up the hole. As much as 30 percent sludge is commonly found in the fluid removed from the first stage of a gas treatment. Although this first acid does not penetrate any appreciable distance into the formation in this initial stage, it is usually found that the acid has reacted up to 80 or 90 percent of its capacity simply by being in contact with the face of the pay formation.

Following the initial clean up stage, the amount of acid used and exact method of application depend on well conditions, but in general it has been found advantageous to introduce the acid not in one large stage or treatment but rather several smaller ones. This method is used because it is not necessary to get equal action right at the face of the well and also at the maximum penetrating distance of the acid away from the well. Rather, it is desirable to get more of the action close to the well and then decrease the amount of acid action farther back in the areas which present less friction to movement of gas. Therefore, it has become common practice to introduce a second stage of 3000 gallons leaving it close to the hole so that it may react in the most critical area, and then following this with a 6000-gallon stage, which overlaps the area covered by the 3000-gallon stage but also penetrates into an as yet untreated section. Wells in comparatively tight zones with low initial open flows respond better to three-stage treatments. These wells generally have a number of pay zones with low permeability and thinner zones with high permeability and it has been found that the three stage treatment offers more uniform increase in permeability than any other type. Each stage penetrates farther into the formation and increases the permeability a greater distance from the bore hole.

As an example, stages of 1000, 3000, and 4000 gallons have been successfully used on extremely low volume wells and stages of 1000, 3000, and 6000 gallons have been used with success on large volume wells.

The effect of acid on increasing permeability is very strikingly shown in Figure 2. In this treatment of a very low permeability well, three stages of 1000, 3000 and 4000 gallons were used, and, in even the first stage, acid was forced out of the hole. In the first stage, about nine hours were required to force 1000 gallons acid into the formation at surface pressures ranging up to 900 pounds. This stage was made

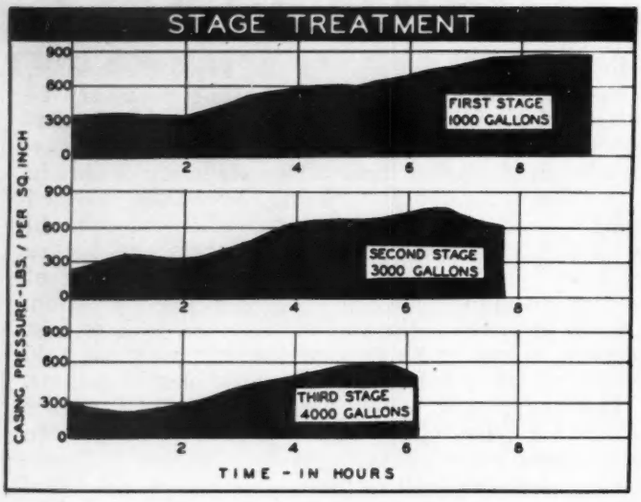


FIGURE 2

slowly to insure maximum acid action close to the face of the pay.

In the second stage, 3000 gallons were put in at maximum pressure of 750 pounds but less than eight hours were required. In the last stage, only six hours and 600 pounds maximum pressure were required for 4000 gallons.

The difference in rate of acid introduction in first and last stages is very marked. In the third stage, even at 300 pounds less differential, acid entered the formation at six times the first stage rate.

It is not uncommon in the Panhandle field to complete low volume wells in areas of high volume producers. For example, a 12 million cubic foot well may offset an 80 million cubic foot well. These low volume wells may be increased in production comparable to offset wells by removal of the peculiar localized plugging condition. Usually a two or three stage treatment will accomplish this.

Although no set rules on number and size of stages have ever been formulated or ever will be formulated, it has been proven that if the increase following the first or second application is abnormally high, the unusual permeability conditions probably are rectified and it is generally found that another stage will not give sufficient increase to be justified. Such wells with unusual permeability characteristics have shown an increase in open flow as high as 675 percent.

[1] U. S. Patent 2,024,718.
[2] U. S. Patent 1,998,756.

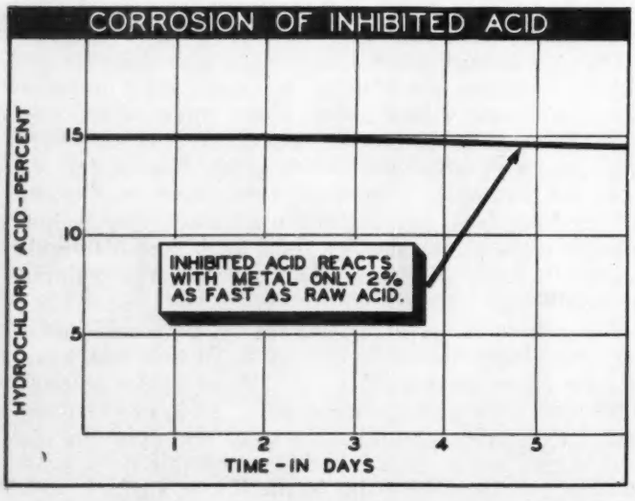


FIGURE 4

Auxiliary Chemicals

Since acidizing of both oil and gas wells has been progressing at the same time, types of acid produced to overcome specific problems of oil well acidizing have been used automatically in gas well acidizing. For example, the use of inhibitors to keep corrosion of well equipment to a minimum is used in both oil and gas well treatments. Figures 3 and 4 show results of tests to demonstrate effectiveness of inhibitors.

Another material added to the acid with very good results is a material to reduce surface tension.[1] By adding this material, the acid is changed so that it will enter the formation more easily than ordinary acid and, furthermore, will allow the spent acid to be more rapidly removed from the formation. This is an important factor, as the removal of spent acid in a gas well is more difficult than in an oil well due to the greater tendency of the gas to by-pass the spent

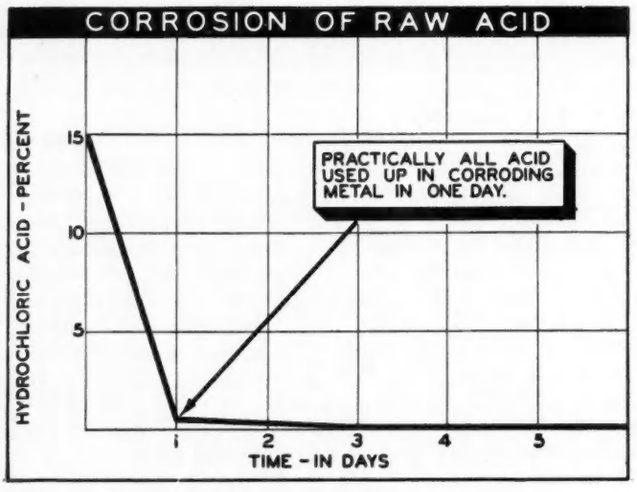


FIGURE 3

acid in the formation. Anything that will make the acid travel more freely and rapidly through the formation will permit more prompt cleaning of the formation and in turn will produce better results from treatments.

Use of Gel Plugs

It has been found that the success of gas well acidizing, just as in oil well acidizing, depends upon the vertical distribution of the acid in the formation. For this reason, the use of organic temporary chemical plugs[2] has become very important.

These chemical plugs or seals are solutions of organic material which enter the well head in liquid form but gel at the bottom of the well into a gelatinous mass which has very remarkable plugging properties. The plug cannot be forced into the pores of the formation except under pressures much higher than encountered in a treatment. This seal remains effective throughout the acid treatment, but following treatment it has the most desirable property of

"IF I WERE BUYING BEARINGS FOR OIL FIELD EQUIPMENT HERE ARE SOME OF THE THINGS I WOULD WANT TO KNOW ABOUT THE BEARING MANUFACTURER"

"If I were buying bearings for my oil field equipment—(or any other part as vital to the efficiency, dependability and endurance of my product)—I would want to satisfy myself on the following points before selecting any make:

"FIRST: Is this particular make of bearing strong in my industry? Is it well regarded by leading manufacturers and users of oil field equipment or must I pioneer it?

"SECOND: Has the bearing manufacturer had the many years of experience in making bearings for oil field equipment that are necessary to enable him to provide the best solution to my particular problem?

"THIRD: Does the bearing manufacturer have a competent world-wide service organization to take care of bearing emergencies in my factory and in the field?

"FOURTH: Is the capacity of the bearing manufacturer's plant large enough to take care of my requirements promptly and completely during production peaks?

"FIFTH: Is the bearing manufacturer in a strong financial position?

"SIXTH: Does the bearing manufacturer have a reputation for backing up his product under all circumstances?

"SEVENTH: Is the bearing manufacturer's engineering personnel trained and experienced not only in applying bearings to oil field equipment, but also can they cooperate with me on general machine design?

"EIGHTH: Does this particular make of bearing have acceptance both to equipment users and equipment manufacturers? Does it add prestige and sales value to machinery in which it is used?

"I should want to ask these questions of the manufacturer of every make of bearing I was considering and the bearing manufacturer who could answer "yes" to all of these questions—and back it up with proof—would stand the best chance of getting my business."*

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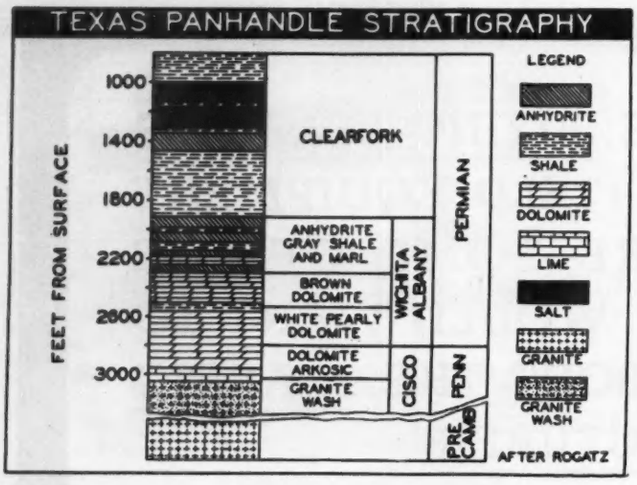

FIGURE 5

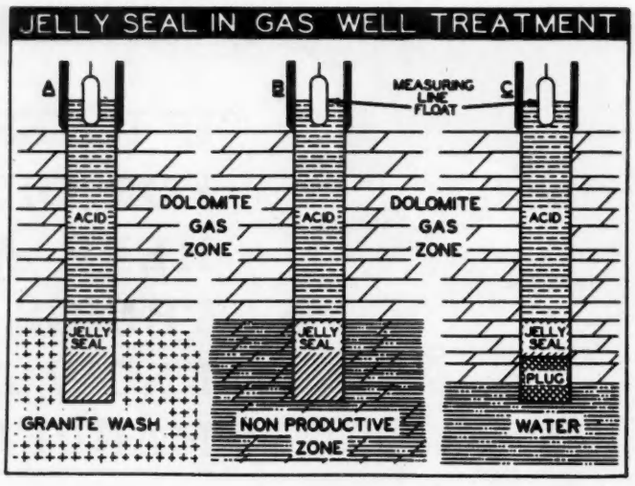

FIGURE 6

liquefying again as a result of bacterial action so that it can be removed very readily from the well.

Many uses for this gel have been found. In certain areas of the Texas Panhandle, wells produce from granite wash and also from dolomite above the granite wash as shown in Figures 5 and 6-A. Although granite wash is not acid soluble to any appreciable extent, any acid penetrating this formation is entirely lost and can only do harm instead of good through possible plugging or sloughing of the formation. Furthermore, the granite wash, much more permeable than the dolomite above, may well take up the greater part of the acid and the upper dolomite will not receive sufficient acid to be appreciably benefited. Therefore, in order to force acid into the dolomite, it is necessary to temporarily seal up the granite wash below. This can be done readily by adding the required amount of gel to cover completely this bottom zone. Very successful treatments have been made using this method, results of treatments running up to 575 percent increase in gas production.

In other wells it is also desirable to plug the bottom of the hole in a well drilled 30 or 40 feet beyond the last gas horizon to form a pocket for cavings as shown in Figure 6-B. This eliminates possible loss of acid into a porous although non-productive zone in this bottom section. Following treatment, the gel liquefies, permitting the space to become available again for its original purpose.

Also, it is not uncommon to find the producing gas horizon directly above a profitable oil zone, and when this is believed to be the case, a test for oil is made in the lower zone. If no oil is found, the well is then plugged back with cement or lead wool and completed as a gas well as shown in Figure 6-C. It is not desirable to place acid directly above a plug as, when pressure is applied, the acid may be forced down between the plug and the formation, permitting water to enter the well. In addition, even inhibited acid has a rather rapid rate of reaction on lead and may cause so much damage to the lead plug that water will come up through it. It is possible to cover up the cement plug with a few feet of a heavy gel that will keep the acid away from the plug throughout the entire treatment and in this way avoid damage to the bottom-hole plug.

Equipment

Gas loading requires forcing gas under pressure into the well on top of the acid, accomplished by picking up gas from lease lines and running it through large compressors mounted on five-ton, three-axle trucks. Compressors of both booster and two-stage type are giving satisfactory service in the field at the present time. All these units are equipped

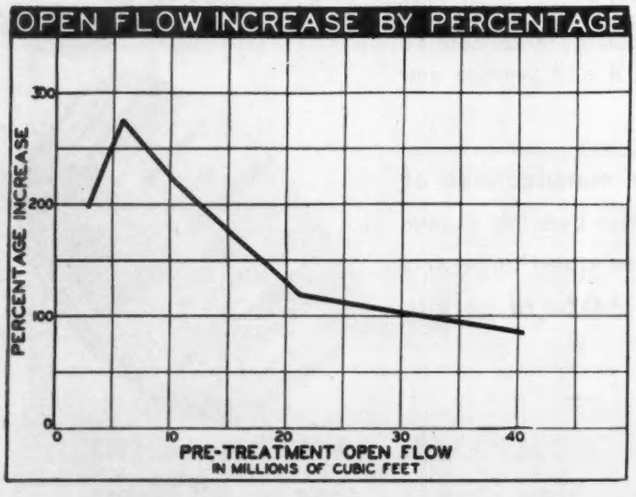

FIGURE 7

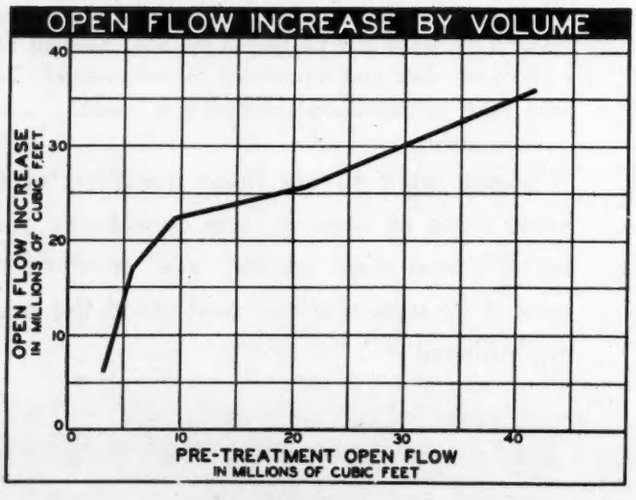

FIGURE 8

WORLD'S GREATEST OIL AREA

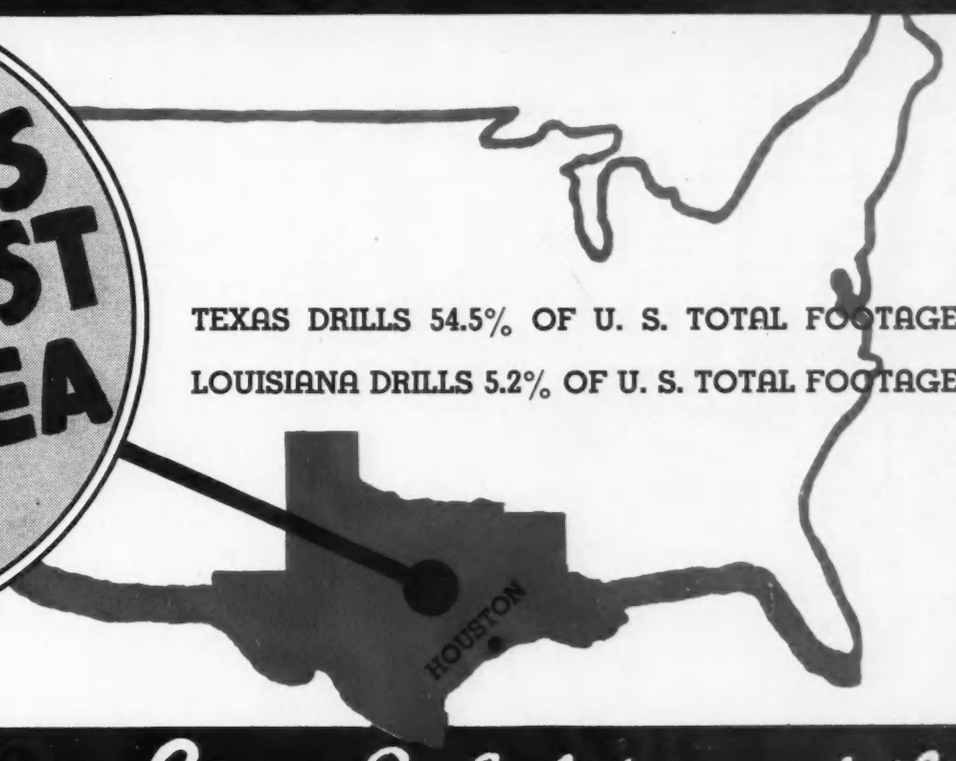

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TABLE 1

Increase in Flow Obtained by Acidizing Texas Panhandle Gas Wells

Well No.	Number Stages	Number Gallons	Open Flow Production Cu. Ft. Per Day		Percent Increase	Cu. Ft. Per Gal. of Acid
			Before Acid	After Acid		
1	1	3,000	3,000,000	6,800,000	127	1267
2	1	3,000	3,000,000	7,800,000	160	1600
3	3	8,000	2,480,000	10,300,000	315	977
4	2	4,000	7,000,000	9,000,000	29	500
5	2	5,000	6,885,000	13,168,000	91	1257
6	3	10,000	6,800,000	31,800,000	368	2500
7	3	10,000	5,400,000	34,400,000	537	2900
8	2	5,000	7,000,000	25,242,000	261	3648
9	2	5,000	6,300,000	12,000,000	90	1140
10	2	5,000	6,000,000	11,500,000	92	1100
11	3	8,000	3,800,000	16,500,000	334	1587
12	2	5,000	6,800,000	27,562,000	305	4152
13	2	5,000	4,690,000	38,698,000	725	6802
14	2	5,000	6,650,000	33,300,000	401	5330
15	2	4,000	12,000,000	81,000,000	575	1725
16	3	10,000	11,600,000	33,130,000	186	2153
17	2	5,000	13,000,000	24,835,000	91	2367
18	2	5,000	7,300,000	21,436,000	193	2827
19	3	10,000	12,000,000	44,000,000	267	3200
20	2	5,500	8,314,000	17,335,000	109	1644
21	2	5,000	11,600,000	17,261,000	49	1132
22	3	10,000	9,900,000	29,974,000	203	2007
23	3	10,000	9,000,000	59,000,000	556	5000
24	3	10,000	14,000,000	37,213,000	166	2321
25	2	5,000	9,000,000	14,421,000	60	1084
26	2	5,000	7,280,000	16,147,000	122	1773
27	2	5,000	25,000,000	45,101,000	80	4020
28	2	5,000	25,900,000	49,350,000	91	4690
29	3	10,000	27,700,000	61,619,000	122	3392
30	3	10,000	19,000,000	63,000,000	232	4400
31	3	10,000	16,000,000	56,000,000	250	4000
32	3	10,000	17,000,000	51,411,000	202	3441
33	2	5,000	23,200,000	30,930,000	33	1546
34	4	15,000	17,000,000	28,200,000	66	747
35	2	5,000	21,910,000	36,007,000	64	2819
36	3	10,000	28,537,000	41,305,000	45	1277
37	2	5,000	24,250,000	49,834,000	105	5117
38	2	3,000	18,800,000	52,800,000	181	11,333
39	3	10,000	16,000,000	47,021,000	194	3102
40	3	10,000	31,600,000	78,900,000	150	4730
41	2	5,000	35,000,000	61,795,000	77	5359
42	2	5,000	31,700,000	80,179,000	153	9696
43	2	5,000	37,000,000	74,518,000	101	7504
44	2	5,000	33,000,000	60,413,000	83	5483
45	2	5,000	42,100,000	60,197,000	43	3619
46	2	5,000	40,000,000	67,466,000	69	5493
47	2	6,000	80,000,000	136,000,000	70	9333

to haul 1000-gallon trailers, and in addition are equipped with a 3000-pound high volume acid pump, winch, safety equipment and devices, gauges, permanent instrument panel, hose and miscellaneous fittings. Costing more than $25,000 each, they rate among the finest pieces of portable equipment in the oil fields.

Results and Economics

Gas well treating is five years old and results obtained in the field have been commercially satisfactory. Results obtained in the Texas Panhandle during the past year, comprising a group of 47 consecutive treatments, have been analyzed as shown in Figures 7 and 8 and Tables 1 and 2.

Figure 7 shows the average results obtained on these wells in percentage increase plotted against pretreatment production. In preparing this data the 47 wells were placed in five classes based on pretreatment production as shown in the table. Figure 8 is even more interesting in that pretreatment production is here plotted against the actual production increase obtained by treatment. Although the percentage of increase falls with increasing pretreatment production, the actual increase in million feet per day increases very rapidly as shown. On an average, a 5 million foot well would be increased to about 18 million, a 10 million foot well would be increased to 32 million, a 20 million foot well would be increased to 45 million, and a 40 million foot well would be increased to 75 million.

The actual economic value of gas well treatments can be analyzed better by calculating the cost to the operator in obtaining a million foot open flow, first, by drilling a well, and, second, by acidizing to increase production. Table 2 gives such data on the number of wells in each classification, average pretreatment production, amount of acid used, number of stages in average treatment, the average open flow after acidizing and the percent increase in open flow production obtained by acidizing. This table also shows the cost to the operator of obtaining one million foot open flow capacity by drilling a well, assuming an average cost of $20,000 per well. Naturally this figure is much larger for a small well than a large well, and, in fact, varies from over $7000 per million foot open flow for a small well down to less than $500 per million foot in a large well with an average of $1156 on all the wells.

The cost of acid treatment is based on the cost of inhibited acid with an agent added to lower surface tension and another agent added to increase rate of reaction in dolomitic areas, plus a 50 percent overcharge as an estimate of cost of preparing wells for treatment. This 50 percent added charge must be borne by the operator and is not to be confused with the actual invoice cost of the acid.

Here it is shown that the average cost to the operator of increasing open flow capacity one million cubic feet is only $77 or 6.6 percent of the cost of obtaining the same capacity by drilling a new well.

TABLE 2

Economic Advantage of Acidizing Over Drilling as Demonstrated in Texas Panhandle Gas Wells

Pretreatment Open Flow	No. Wells in Group	Actual Average Open Flow	Acid Date		After Treatment Data		Cost Per One Million Ft. Gas		
			No. Stages	No. Gallons	Open Flow	Percent Increase	Original Open Flow A	Increase Due to Acid B	Percent B of A
0– 3 million	3	2,826,666	1.7	4,666	8,300,000	194	$7,067	238	3.3
3– 7 million	11	6,120,454	2.3	6,090	23,015,454	276	3,268	98	3.0
7–15 million	12	10,416,166	2.4	7,042	32,979,333	217	1,923	83	4.3
15–30 million	13	21,561,307	2.6	7,923	47,121,384	119	925	81	8.7
Over 30 million	8	41,300,000	2.1	5,750	77,433,500	87	484	43	8.8
Average or Total	47	17,267,872	2.3	6,691	40,550,383	135	1,156	77	6.6

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Peak Torque rating, inch lbs.	5400	17900	36800
Overall Reduction Gear ratio	26.0	24.9	24.9
Maximum Polished Rod stroke, inches - - - - -	15	24	32

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Scene of test shooting area at Rushford, New York.

Well Shooting Experiment May Develop Helpful Data

By PAUL M. PHILLIPPI
Olean Petroleum Company, Eastern Division, Olean, New York

A GREAT many oil wells are shot, yet no one knows exactly what effect the nitroglycerin charge has on the sand body. Very little work has been accomplished along this phase of the petroleum industry, but recent research studies that may bring to light important data have certainly aroused interest in the problem.

Shooting is particularly important in the regions of secondary recovery where both the intake and producing wells are shot. Regardless of the abundant knowledge which an operator may have of the physical characteristics of his sand body, he is at a loss to understand what constitutes a proper shot and the effect of the shot on the sand. A great many theories have been advanced but nothing definite has been accomplished towards proving or disproving what has already been stated. Each operator has his own individual ideas of how a well should be shot and precedent rules his shooting practice. The shot may increase recovery or it may prove disastrous.

In water-flooding operations, it is assumed that fractures or so-called fissures caused by shooting are likely to allow a large portion of the oil content to be by-passed. The exact direction and extent of these fissures are unknown. The effective radius of a shot has been computed theoretically at considerable variance. Ryder has at-

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tempted to determine the size of shot hole by measuring known quantities of gravel dumped into the well. A recent article by Bossler describes a feeler device for recording the extent of a shot hole. It would be interesting to learn what effect the different tamping methods have on the sand. Numerous well shooting problems of unlimited value to the oil producer to date remain unsolved.

The research group at Penn State College working in conjunction with a large explosive manufacturer recently attacked this shooting problem from the research angle. Sections of oil sand taken from a diamond core were drilled and sent to laboratories for "test shooting." These investigations are under the direct supervision of Dr. S. T. Yuster who will report on this work at a later date.

However, it was felt that the diamond core samples were too small to work successfully with on this project. It was then decided that field experimentation on a larger scale would yield better results providing a suitable outcrop of rock resembling the Bradford Sand could be located.

A certain amount of preliminary reconnaissance work was necessary to locate an exposure adaptable to the needs of the experiment. Several days were spent in the field gathering samples and searching for rock exposures which would serve the purpose. Although the Bradford Sand does not outcrop, there are several outcropping formations which correspond geologically with the stratigraphic position of the Bradford and these sections were studied in detail.

The governing factors of an outcrop to serve for the outlined project were listed as follows:

1. Porosity Range—Similar to Bradford Sand—12%—15%.
2. Permeability — Similar to Bradford Sand—3—10 Millidarcys.
3. Thickness of Sand Strata.
4. Accessibility.
5. Amount of overburden.

Rock specimens were secured and brought into the laboratory for examination.

As a result of these preliminary investigations the most likely spot was found to be near Rushford, New York. This exposure is located along the highway about one-half mile above the point where Rush Creek joins Caneadea Creek and consists of a massive sandstone member, 12 to 15 feet in thickness. The sandstone lay without overburden on a point overlooking the creek on one side and a deep road cut on the other.

A series of samples from this section yielded the following laboratory results:

Sample No.	Permeability Md.	Pct. Porosity
1	1.79	15.10
2	3.67	16.30
3	1.09	15.00
4	1.22	13.30

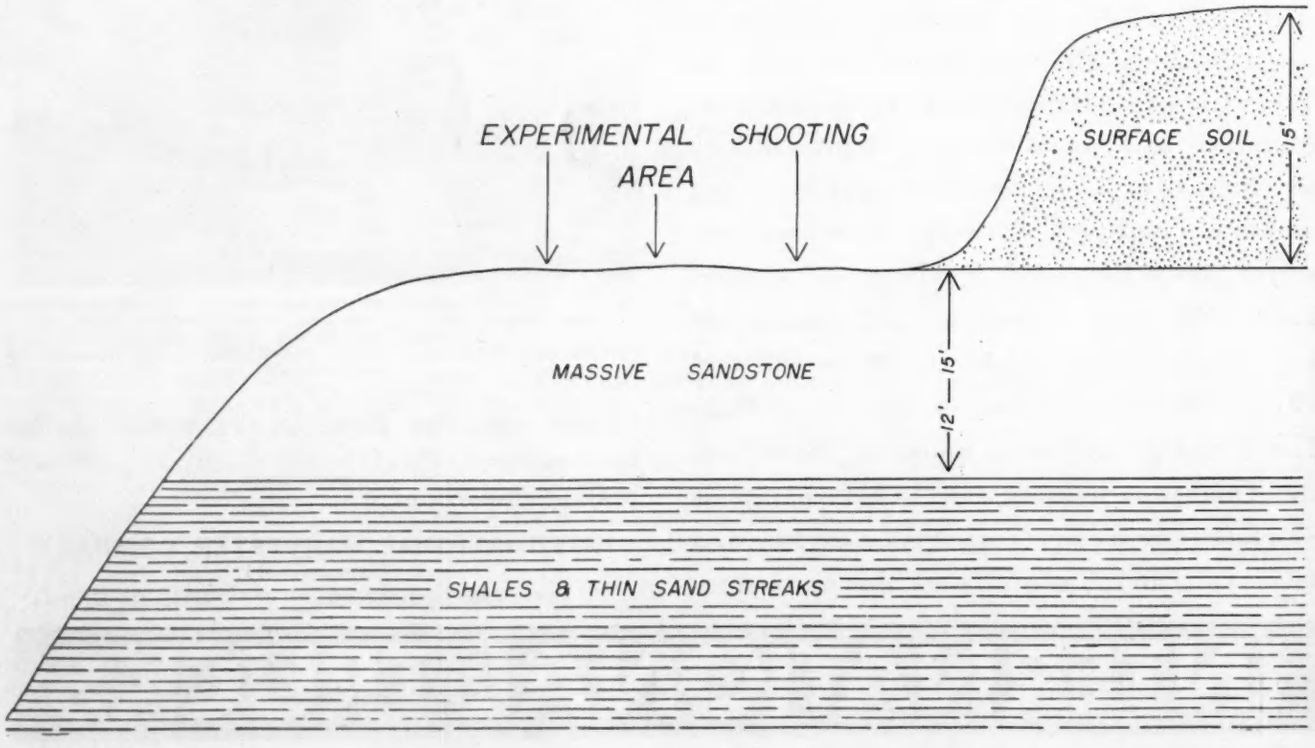
This exposure more closely approximated the Bradford than any other and was selected as the site for the shooting experiment. Permission was granted by the landowner and preparations made to start work immediately.

The actual experimentation work was conducted by E. H. Phillips, division manager of American Glycerin Company, assisted by Dr. H. H. Holmes of the explosives laboratory of E. I. du Pont de Nemours & Company. Dr. Holmes submitted a report on the experiment and kindly granted permission for portions of it to be included in this article.

The object of the test was to shoot small charges of nitroglycerin in sandstone similar to the Bradford producing sand and then expose the shot holes for visual observation. The sand contained no oil but was similar to the Bradford in grain structure and permeability. It was dry and brittle, and was later found to contain several deep fissures which were presumably opened by blasting of the highway cut. The stone exhibited well-defined vertical joint planes about 10

FIGURE 1

Exposed rock section at Rushford, New York, shooting experiment.



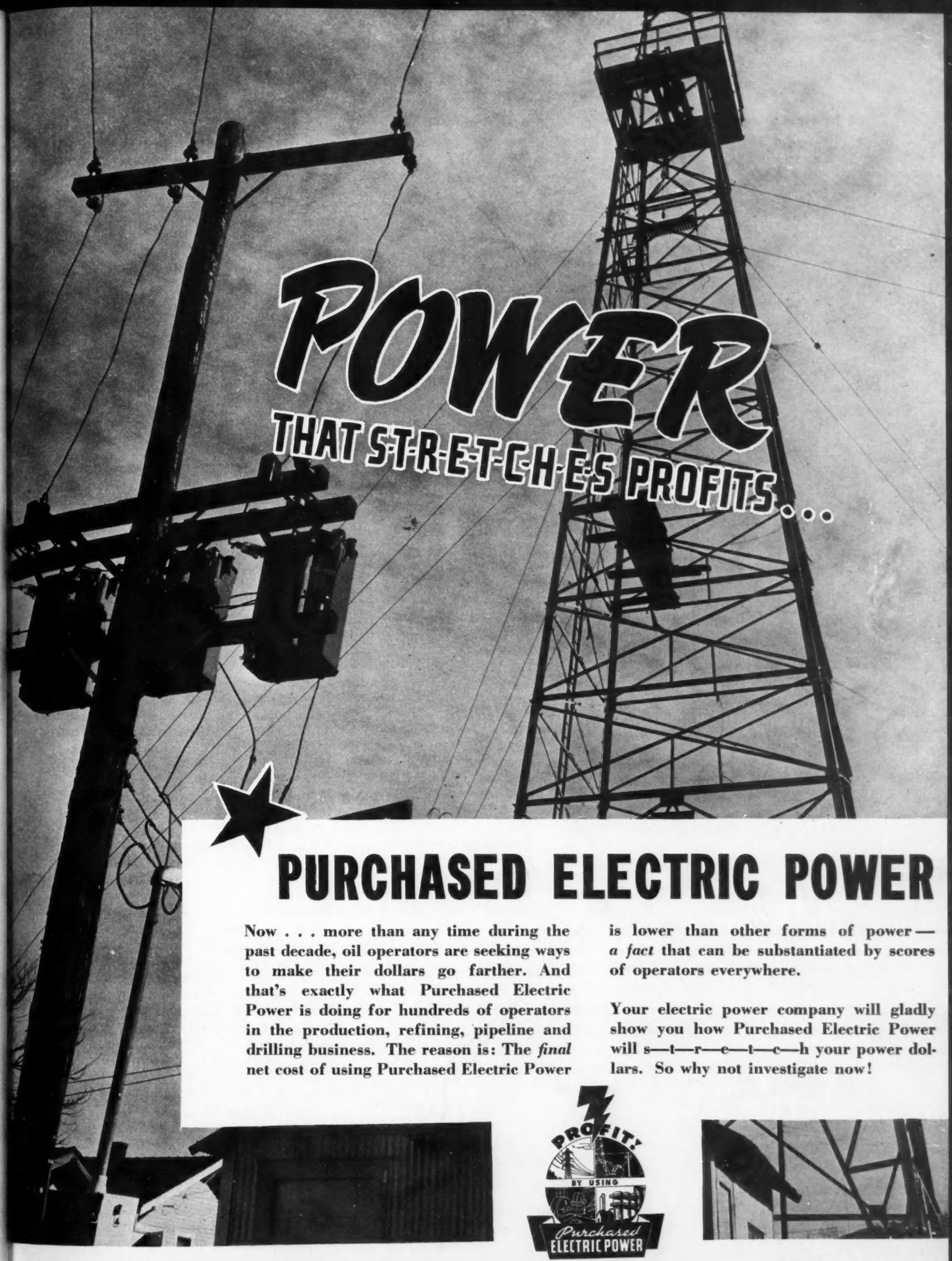


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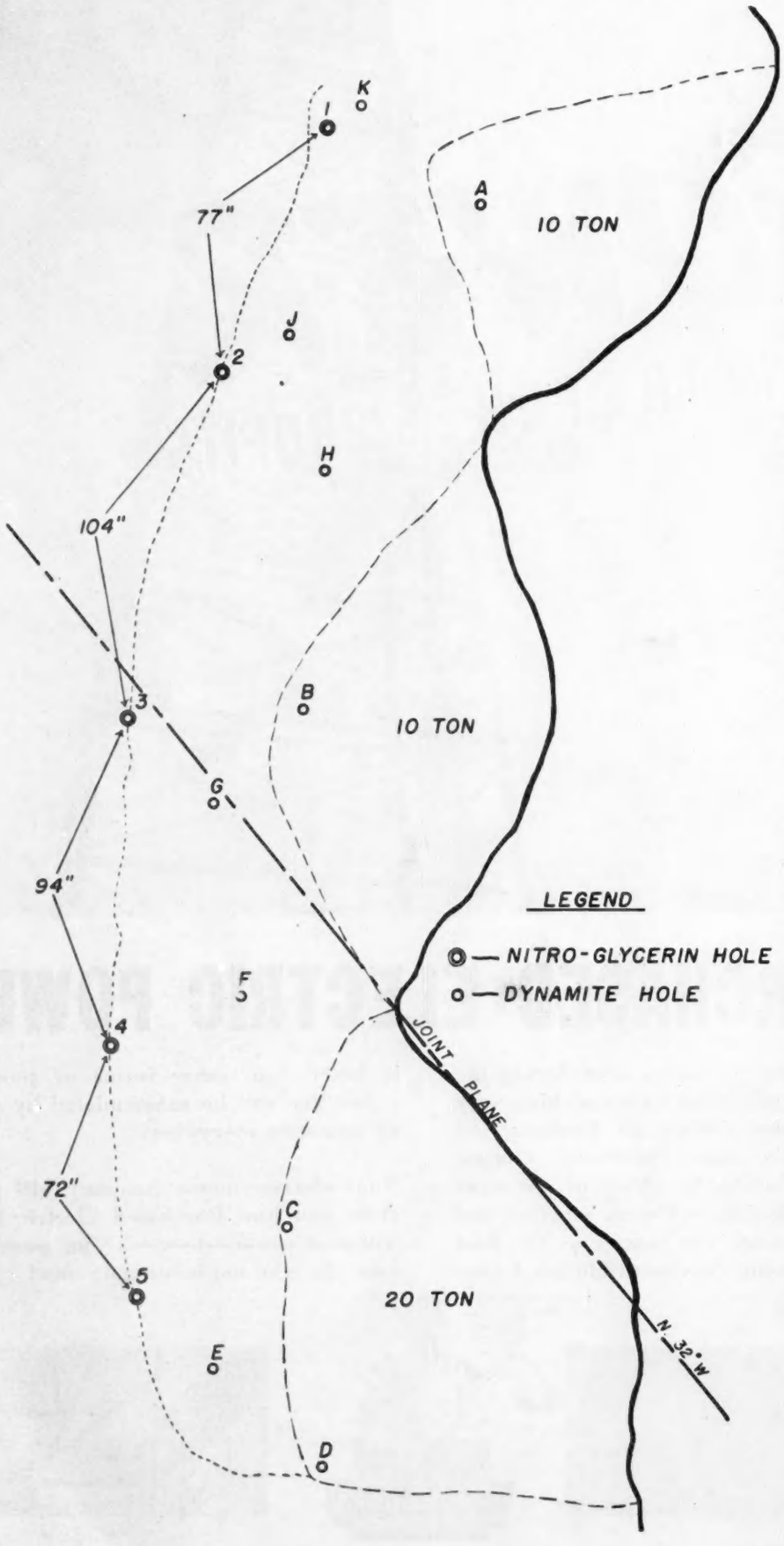
FIGURE 2

Shot locations at experimental oil well shooting area at Rushford, New York.



feet apart, as well as numerous horizontal bedding planes.

The layout of all shot holes is shown in Figure 2. Those containing nitroglycerin (Nos. 1—5) were 6 feet deep, the bottom foot being drilled with a special bit to a diameter of ⅞-inch. The upper 5 feet varied from 1½ inches up to 2 inches at the collar. These holes were loaded and shot individually with liquid nitroclycerin, in special tin tubes, primed with a No. 6 electric detonator and a small quantity of 60 percent straight dynamite. Loading data is given in detail in Table 1. Upon detonation of Hole No. 5, the largest charge, the surface of the sand was lifted and broken over a radius of about 1½ feet around the collar of the hole. From this fact it follows that the rock must have broken along its horizontal bedding planes, and similar action, although to a questionable extent, may thus be expected in actual oil well shooting. In the case of Holes No. 2 and No. 4, water was thrown about 50 feet above the surface, but the sand was undisturbed. In the case of Holes No. 1 and No. 3, the surface was visibly lifted about ½-inch by the shot but it settled back unbroken. The sand stemming held firm in all cases.

The nitroglycerin shots having been completed, the east face was slabbed off by means of two rows of holes, A to D and E to K, respectively, Figure 2. These holes were 8 feet deep, 1½ inches in diameter at the bottom and 2 inches in diameter at the collar. Each of the holes A to D was loaded with 3.6 to 4.5 pounds of 60 percent straight dynamite. These were shot first and the face was cleaned off before the second row was loaded. The second row was shot with about 1 pound of 60 percent straight dynamite in the bottom and 1¼ pounds of "Monobel" D as a top load in each hole. Upon shooting this row and mucking out the loose rock, the nitroglycerin holes were exposed to view. Holes No. 2, to No. 5 were found to be neatly sectioned in an axial plane. Hole No. 1, however, was shot away by the reliever hole K.

One of the principal points on which information was desired was the number and extent of the cracks opened up by the nitroglycerin. Unfortunately, so many cracks were formed in removing the face that it was impossible to judge how many resulted from the nitroglycerin itself. This difficulty

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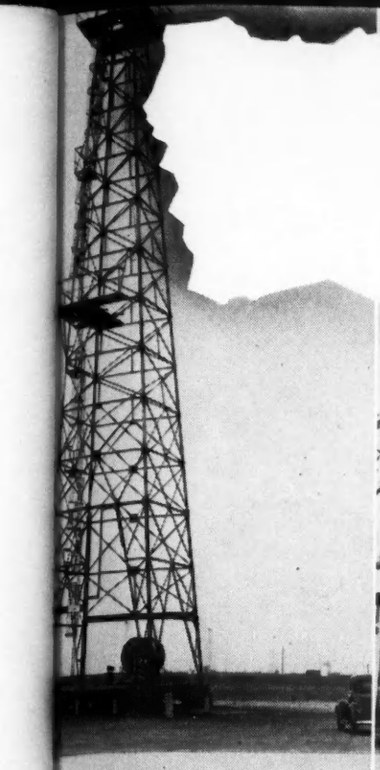

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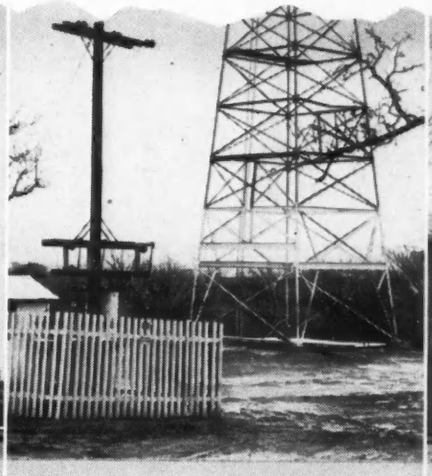
208'. Mentone Field, Texas.



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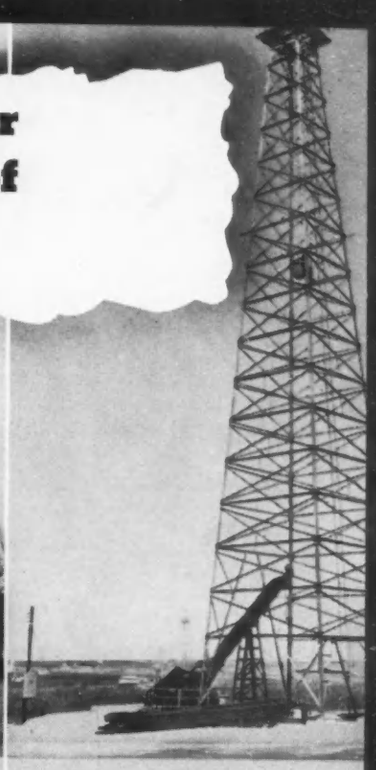
Approximately 3% oil is being economically produced from this Elbing, Kansas, well.



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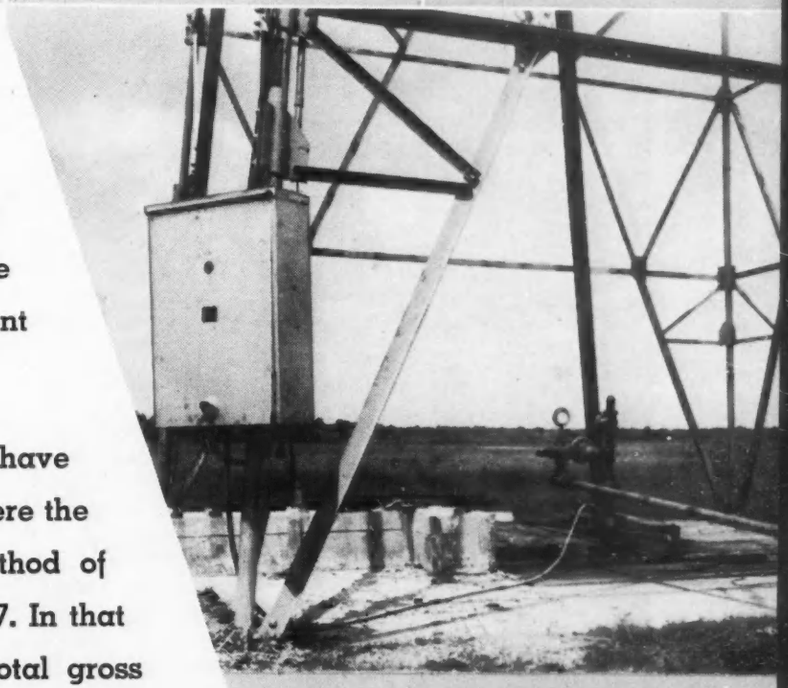

A 15 H.P. Reda unit is used in this well. Set at 2720'. Esperson Field, Texas.

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cannot be ascribed to the excessive use of dynamite. On the contrary, the sand contained so many cleats in both horizontal and vertical planes that cracking would have occurred even had the entire face been removed by hand.

Fairly definite estimation could be made of the amount of sand pulverized by each shot. Expressed as radial distance from the original periphery of the hole, the extent of visible pulverization was as follows:

Hole No.	Charge Diameter	Stemming	Radius Pulverized
2	⅝″	Water	¼″
3	½″	Sand	¼″
4	½″	Water	⅛″
5	1″	Sand	2″

TABLE 1
Experimental Nitroglycerin Shots

Hole No. (In Order Shot)	NITROGLYCERIN Diameter	NITROGLYCERIN Length	Charge Weight (Grams)	Primer (At Top of Charge)	Depth to Bottom of Charge	Hole Diameter At Charge	Stemming (from Charge To Collar)
5	1″	8″	160	3″ (25 g.) 60% Str. 2 #6 E.B.C.	56″	1″—½″	Sand
4	½″	6″	30	10 G. 60% Str. 1 #6 E.B.C.	70″	⅞″	Water
3	½″	6″	30	10 G. 60% Str. 1 #6 E.B.C.	70″	⅞″	Sand
2	⅝″	6″	48	15 G. 60% Str. 1 #6 E.B.C.	70″	⅞″	Water
1	⅝″	6″	48	15 G. 60% Str. 1 #6 E.B.C.	61″	⅞″	Sand

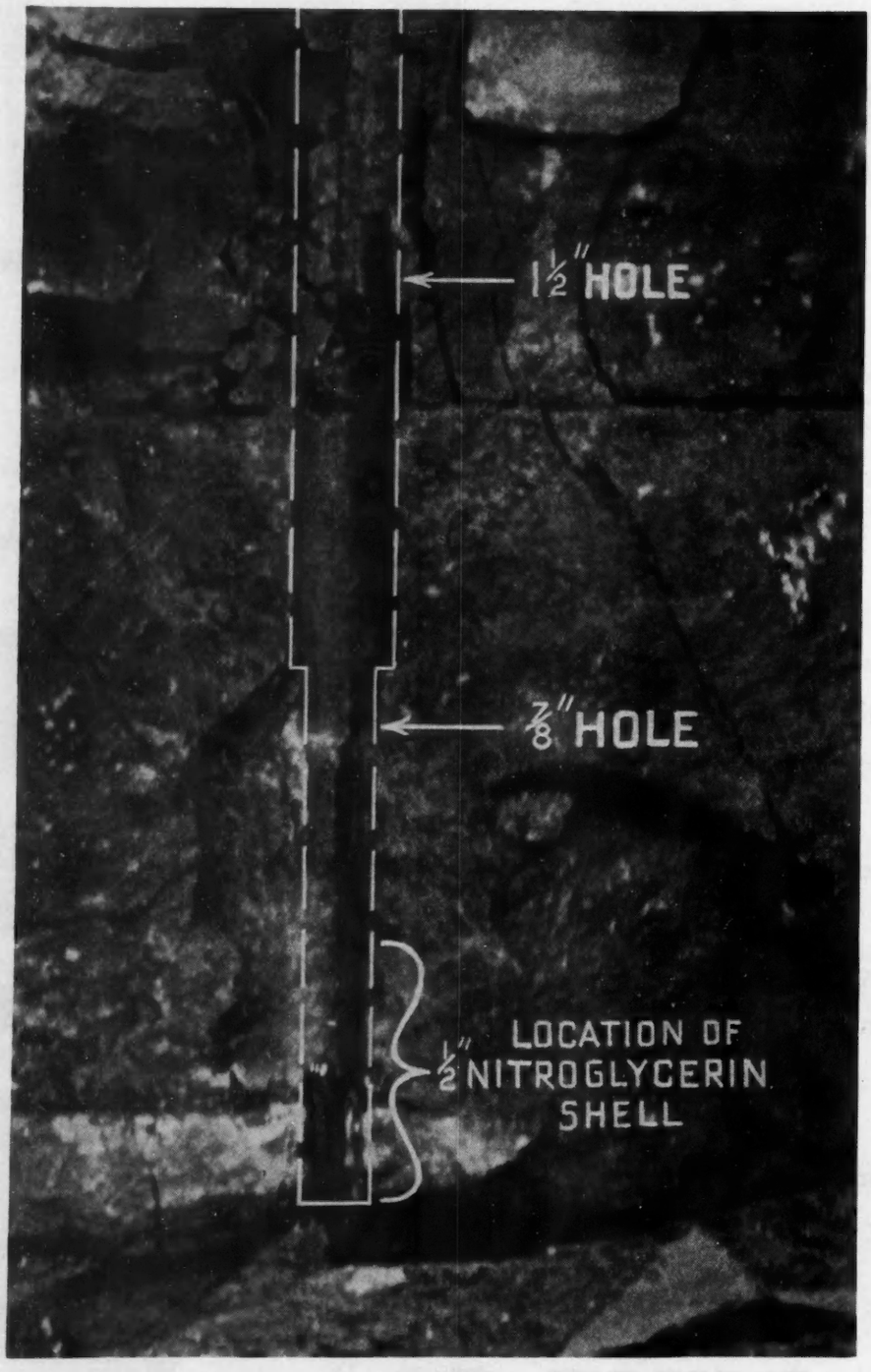
The effect of the explosive shock apparently increased more than in proportion to the charge weight. This may be due in part to the difference in velocity between ½-inch and 1-inch diameters, since measurements in full-scale wells have shown that the radius of the hole rarely is more than 18 inches after shooting with 4-inch diameter charges. At any rate, the sand beyond the small area of pulverization appeared intact.

In contrast to the slight effect of the shock wave in the radial direction, the familiar directional effect of cylindrical charges was evidenced by pulverized sand extending about 4 inches below the original bottom of the hole.

The sand-tamped holes did noticeably more work on the sand than did water-tamped holes with an equal charge. This conclusion is also confirmed by observation of surface movement at the instant of detonation.

Because of the difficulty of obtaining sand samples of suitable shape from the vicinity of the holes, no attempt was made to measure the change in permeability of the sand caused by the experimental shots. The test did, however, demonstrate the possibility of obtaining useful information by shooting small nitroglycerin charges in reinforced blocks of sand. It is planned to carry out this experiment at some later date.

No definite conclusions can be drawn as a result of this first well shooting experiment in the eastern area. Its chief importance lies in the fact that interest has been aroused and the ground work laid for future activity. Research laboratories have expressed their willingness to work on this problem and with the aid and cooperation of the oil producers, it may be possible to answer correctly one of the most perplexing questions an oil operator can be asked: What happens in a well when it is shot?



Cross section of test hole after nitroglycerin shot.

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REVIVING

Stripper Production With Salt Water

By F. R. COZZENS, Equity Oil & Gas Company

TEN years ago, if an eastern oil field operator had caught his pumper pouring salt water down a producing well the man would have been fired on the spot. Salt water had long been a major problem in stripper fields, and the common custom was to abandon a well when the production of oil did not justify the cost of exhausting the water. As time passed however, it became apparent to these operators that salt had a cleansing effect upon oil rock, and that wells making salt water retained a production of oil over a much longer period than did wells without it. These observations eventually led to experiments in which salt water in various quantities was applied to paraffined oil sands. In practically every case the application gave beneficial results, and when the water was heated and applied under pressure, oil production was often boosted from 20 to 40 percent.

The salt water treatment as now perfected is quite simple on leases where a stationary or portable air compressor is available. Tubing is first removed from the well to be treated, and a steel storage tank, usually of 100 barrels capacity is placed nearby. The tank is filled with salt water and heat is applied by a furnace underneath the tank until the water registers about 200°F. The water is then turned into the well through a two-inch pipe. When the well has been thus filled to within 10 feet of the top, the pipe is taken from the tank and connected with the air compressor. Compression is begun slowly and maintained for 24 hours, or until pressure at the casing head registers 500 pounds. The air is then released, and the water is taken from the well by suction pump or bailer. In removing the water, large curds of paraffin are noticed, and usually a quantity of slime and dead oil. When the hole has been bailed as dry as possible, the hot salt water and the same type of air compression is introduced again. This practice is repeated until the salt water upon removal shows evidence of gas and live frothy oil. Three applications are usually sufficient for the average well, and when pumping equipment is installed, production responds immediately, showing that wax and paraffin has been cleaned from the sand face. Rock pressure again forces oil through the natural channels, and in the majority of cases the well is reclaimed as a paying producer.

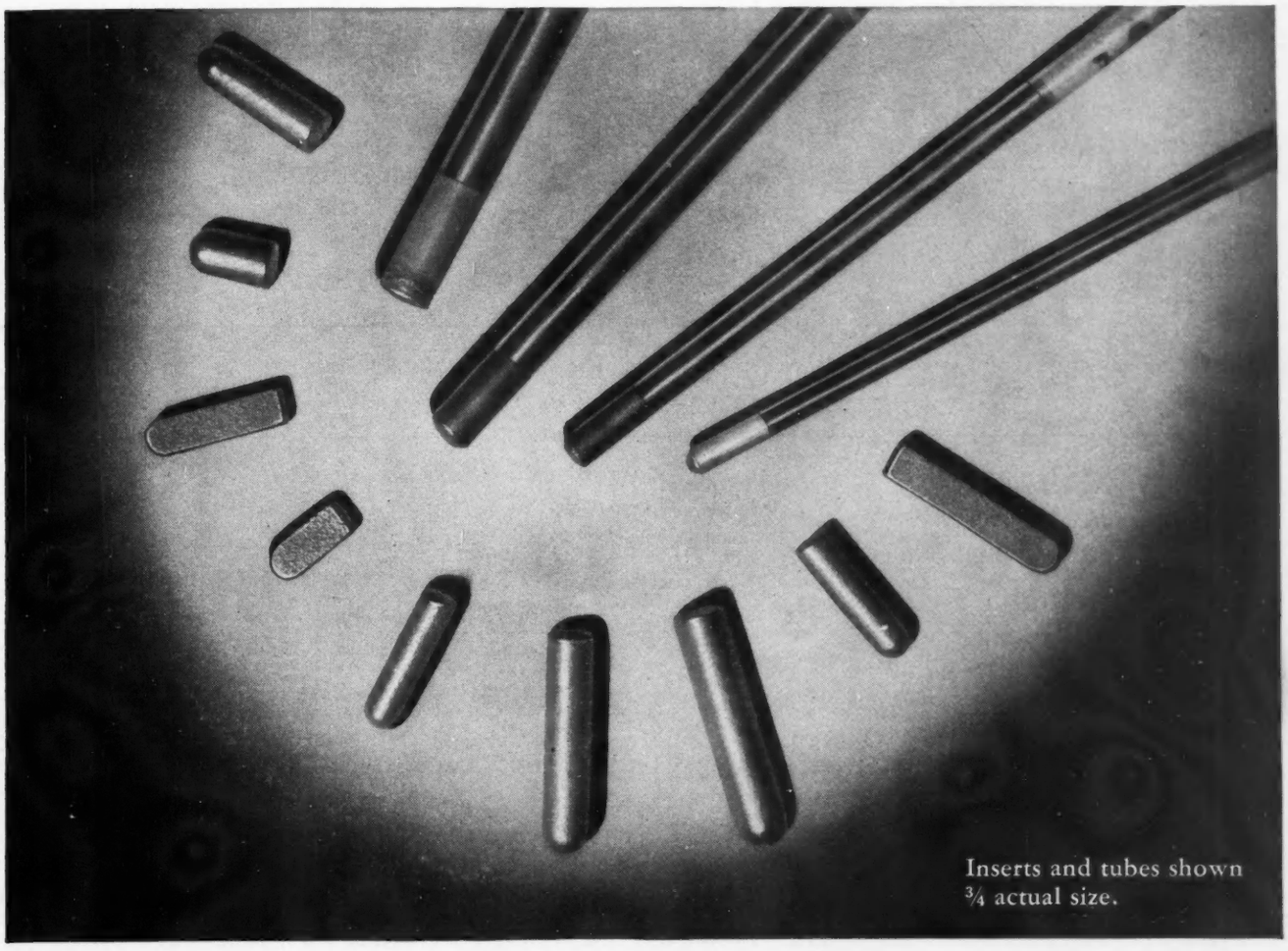
Where casing is old and will not withstand pressure, the treatment becomes more complicated. It is then necessary to run a rubber expanding packer down to the top of the sand, then apply the hot salt water and air through the tubing. In these cases, compression is slower, and must be held over a longer period of time for beneficial results.

On leases, especially in shallow oil districts where air compressors are not available, the treatment is applied by filling the shot hole, or reservoir made previously in the sand by explosives, with the heated salt water. Pressure upon the rock is then obtained by releasing into the water, from 10 to 20 pounds of gelatin. The charge is exploded by a two foot length of waterproofed fuse, which is attached to the gelatin cartridge. Blasts are not heavy enough to damage the casing but their repetition is quite sufficient to "scrub" the sand face of paraffin and bring in live oil. In wells of less than 600 feet, certain operators have improved production simply by filling the holes with salt water, allowing them to stand for a week then pumping dry. A series of such treatments over a period of months gives, in most cases, effective results.

The primary purpose in any form of water treatment is to clean the sand face and open channels as far back as possible into the sand. Salt water gives this action at minimum cost since it is usually available in every district. A substitute is sometimes made by stirring 100 pounds of coarse salt into each 100 barrels of soft water, mixing being done by an agitator. Cost of application seldom exceeds $25 per well.

By actual comparison, wells in stripper fields show a 20 to 40 percent longer life span when artificially treated with salt water. There is less trouble with clogged valves, cup cutting, etc., and the treatment has no ill effects on virgin sands in surrounding districts.

"We want Haystellite used on our bits"



Inserts and tubes shown ¾ actual size.

"WE want Haystellite used on our bits." This expression of preference by a mid-continent contractor, based on actual bit performance, is typical of the attitude of men responsible for oil well drilling costs.

Bits hard-set with Haystellite Inserts and hard-faced with Tube Haystellite drill more footage of out-to-gauge hole per round trip—and take less time to do it.

Haystellite Inserts and Tube Haystellite are illustrated here. When and how to use these and other Haynes Stellite products is explained in a 36-page book, "Haynes Stellite Products in the Oil Fields," now in its third edition. A copy will be sent without obligation.

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How Will East Texas Be Pumped?

By GRADY TRIPLETT, Staff Writer

Indications are that the world's most important single pumping equipment market will be a steady buyer of lifting machinery for a considerable period of time, and that all types will be used.

IT must have been four years ago that someone asked:

"When will East Texas go on the pump?"

Since then the question has been repeated thousands of times. Evidently there is an impression that one fine morning will bring the news that all wells in East Texas have ceased to flow.

The answer to the question is that East Texas is now going on the pump and has been going on the pump for two years. Another part of the answer is that East Texas will continue to go on the pump, perhaps at a little faster rate than is now apparent for the next three years. However, it will be many years before the last East Texas well is on the pump.

Important Market

Some idea of the importance of East Texas as a future pumping market may be determined by its relationship to Texas as a whole. Of approximately 33,500 flowing wells in the state, there are 20,000 of these located in the East Texas field. Therefore, more than half of the pumping prospects of Texas are in this one field. Of course, many of the wells will flow for a long period of time, indicating East Texas will be a consistent buyer of pumping equipment for a good number of the coming years.

The rate of water encroachment and decline of bottom-hole pressure will determine the demand for pumping equipment.

At the end of 1936 the field had 2902 pumping wells, 1042 of which were making water. A year later it had 4920 pumping wells, 2389 of which were making water. The number of wells making water grew more rapidly than the number of wells put on the pump.

As for the field coming to a certain day with no flowing wells, that is out of the question. It is an ideal structure and its high wells will flow for five years or longer.

Another reason the field will not come suddenly to a day of needing pumping units for several thousand wells is that well owners are anticipating the need for pumping. The field offers evidence of a concerted program to keep pumping installations ahead of pumping requirements.

Over 5000 Pumping

The latest report of the Texas Railroad Commission, for June, 1938, shows 5666 wells in East Texas dependent upon pumping or

agitation for producing their allowable. This does not include the number of wells on which surface equipment has been set, and there probably are 7500 at this time that have been equipped but which are not using the lifting machinery as yet.

This excess of equipment over the volume actually needed is not the result of installations made three years ago. It is the production practice to install pumping equipment ahead of its actual need, and this policy will continue until the field is pumping to the last well. Installation crews keep steadily on the job of setting up additional units. The completeness of installations not required for immediate pumping depends upon the operating company. Generally, all surface equipment with possibly the exception of the prime mover is put into place. None of the subsurface equipment, sucker rods and pumps, is installed.

When one well on a lease ceases to flow, its owner looks at the whole lease before selecting equipment. If he decides to use multiple pumping, equipment is ordered for whatever number of wells will be pumped in multiple by the prime mover. Thus one well goes on the pump, while one, two or three more are equipped and the back side equipment installed so the other wells can be put to pumping as needed.

When a geared unit is selected, installation frequently is halted when the unit is set, although the concrete base for the prime mover is poured at the time. By this method the prime mover can be installed readily. In other instances prime movers are set up at the time of installing the unit. Frequently housing for the prime mover is erected and a complete installation made well ahead of requirements.

Central powers are among the types of equipment installed ahead of need. The power, rod guides and jacks are set up and pull rods strung so the wells can be hooked up as fast as lifting equipment is put in the hole.

East Texas will be pumped as it is being pumped, with multiple well hookups from both power takeoffs and geared units, with single well geared units, with central powers, both band wheel and geared and with standard rigs.

Its 5000 wells now pumping and its 2000 additional wells equipped but still flowing are the basis for the estimate that multiple well pumping will take care of 12,000 wells, single well geared units will take care of 6000 wells, central powers will pull 5000 wells and standard rigs will pump 4000 wells.

This is based on 27,000 wells. The field has in excess of 25,000 wells. Some students of development believe final development will mean 30,000 wells.

Multiple Hookups

Individual geared units, powered by either gas engines or electric motors, with one, two and three additional wells hooked up through back side cranks are in the majority in East Texas today and installations now moving into the field are so numerous that this method of pumping draws first place.

Three wells in line, so the geared unit can be placed on the middle well and the other two balanced against each other are the ideal combination for multiple well pumping through geared units. Through swings, it is possible to balance wells despite the advantage of three wells in line.

Where four wells must be pumped, three from back side equipment, the practice is to secure well balance through swings.

The double well hookups are provided through balances on the beam of the back side equipment.

Concrete bases for engines, geared units, back side cranks and jacks dominate in East Texas.

The single well unit will dominate in East Texas, as it dominates present installations.

Under proration restrictions, the per well daily output for the field is but slightly above 20 barrels. Constant pumping is not required even where short pumping periods result in short flowing periods.

The individual unit installations are universally anchored to concrete from engine through geared unit and post. Protection for engines is provided in most installations, although some gas engines are left to the weather.

V belt drives provide many of the units with power between engine.

The possibility of shifting wells from multiple pumping to individual geared unit as the water load increases may bring this type of equipment into wider use than the total estimated for the field.

Length of Strokes

Anticipation of water is responsible for the trend toward equipment with stroke of 72 inches for East Texas wells. Stroke of this length does not predominate but the greater number of installations now being made is evidence that producers are ready for a water load.

Stroke of this length is no problem for the well pumping direct from the unit. Providing it for additional wells in a series is being solved by manufacturers.

Necessity for long stroke equipment is responsible for removal of some pumping installations prior to their use. Three years ago the field had its wave of pumping demand when producers calculated early need. At that time shorter stroke equipment was installed. Its need did not arrive as anticipated. Now some of these installations are being replaced with more desirable equipment.

Central Powers

Central power pumping, both band wheel and geared, predominates in the areas where water encroachment is least feared.

Like other types of pumping equipment, central powers have been installed prior to the cessation of flowing. A recent trip over the field gave the impression that more powers are installed and idle than are now pumping.

A phase of central power pumping that makes ready impression is the precaution taken to overcome excess friction in rod lines. Rod guides and lubricated boxes for rollers are installed at all convenient places.

Likewise surveys have been taken with precaution to make sure that the load on the central power is properly balanced. These as well as swings have been set in concrete.

Both gas engines and electric motors are used as prime movers in central power installations.

Standard Rigs

The standard rig may run last in the total of pumping equipment for East Texas, but it is a mistake to assume that only used equipment from other fields is coming into East Texas. New rigs by scores are being bought for East Texas. Both major oil companies and independent producers are installing these units against the day of lifting high fluid totals in order to get required oil output.

Like other equipment, the standard rig is being set up on concrete. The favorite type of installation calls for a slab of concrete from the engine house through the derrick floor, thus engine, clutch and Sampson post are set on a rigid foundation.

Portability and Speed

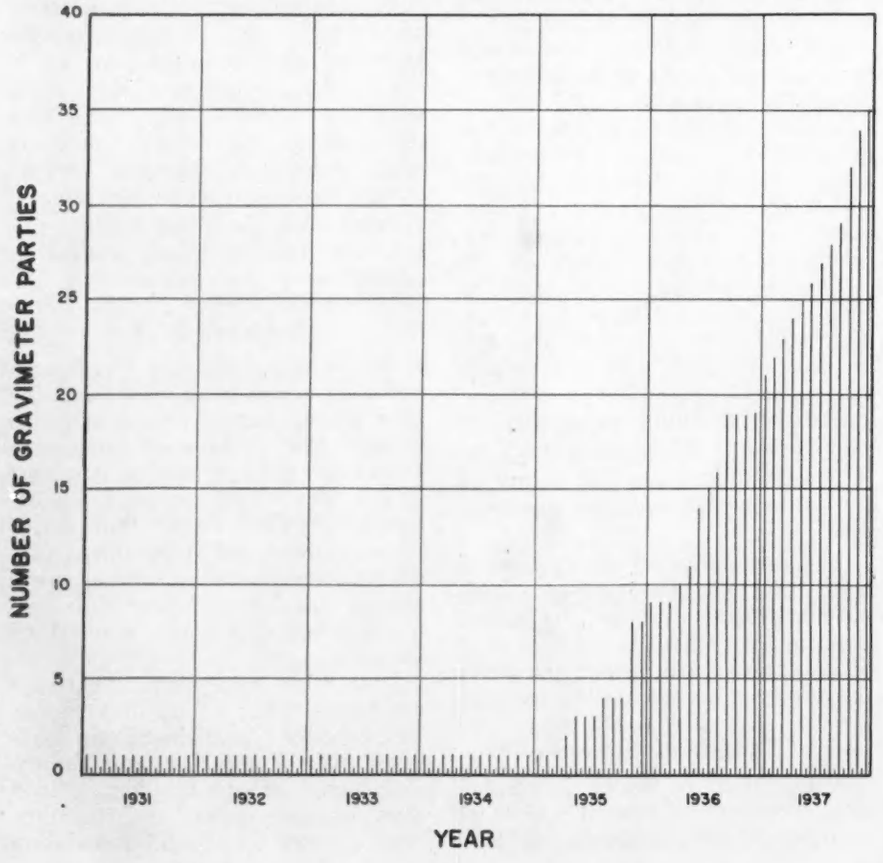
FEATURE

New Gravimeters

By KURT STEINMANN, Staff Writer

STEADILY increasing demand for crude oil and its products has created the incentive for the development of new geophysical methods by means of which oil and gas bearing structures can be located with increased speed, thus reducing valuable time and operating costs. Although one of these latest methods has been known in principle for some time, it was not until several years ago that it was perfected to a point where commercial application was possible. This instrument is known as the modern portable gravimeter.

Number of Gravimeter Parties in United States Increasing



Due to its sensitiveness combined with great speed, the gravimeter has found a rapid acceptance among oil companies and geophysical contracting firms. Considerable research work has been performed by a number of laboratories during the past several years in developing the gravity instrument to the point of commercial sensitiveness with the addition of great speed, particularly for reconnaissance surveys. Several portable models have been placed on the market here and abroad, and results obtained with the different types have been gratifying. Surveys over large areas have shown that the various advantages claimed by the builders have materially cut down, in many instances, expenditures for geophysical work. Approximately 200 instruments are in use at present throughout the world, and this fact certainly indicates that the gravimeter has been accepted fully by the industry and that it will play an important part in future field discoveries.

As the name implies, the gravimeter measures changes in the mass distribution below the surface. Gravimetric prospecting in general is based on the law of gravity discovered by Sir Isaac Newton in the 17th century. According to this

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TABLE 1
The Principal Types of Gravimeter in Use Today

INVENTOR	Period of Manufacture	Fieldworthy Instruments On the Market	Kind of Transportation in Area Under Survey	Approximate Weight	Accuracy with One Repetition	Time of Reading	Average No. of Stations Per Day	Needed Personnel	Thermostat
Holweck	10 years	60	Truck	25 lbs.	−+1-2 mgal	30 Min.	2—3	1—2	Not Necessary
Ising	20 years	2	Truck	70 lbs.	−+1 mgal.	30 Min.	3—5	1—2	Necessary (Ice)
Haalck	10 years	2	Truck, Boat	750 lbs.	−+0.5-1 mgal.	1 Min.	20	2	Necessary (Ice)
Berroth	5 years	2 (Not Fieldworthy)	.....	90 lbs.	.....	1 Min.	....	2	Not Necessary
Thyssen	8 years	80	Truck, passenger car	35 lbs.	−+0.1-0.3 mgal.	1 Min.	15	2	Not Necessary
Mott-Smith	3 years	18	Truck	150 lbs.	−+0.1 mgal.	2 Min.	20	2	Electric
Askania	3 years	..	Truck	125 lbs.	−+0.1 mgal.	2 Min.	15—20	2	Electric

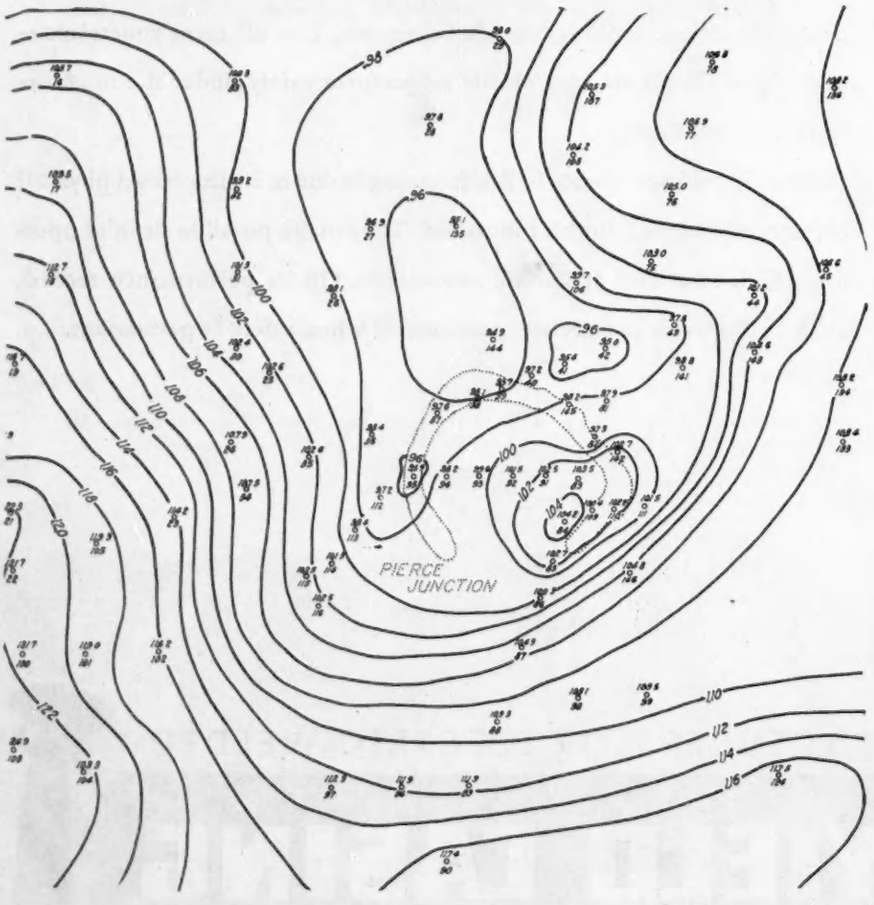
English mathematician, all material bodies are attracted to each other by force that is proportional to the square of the distance separating them. It is quite natural to expect that the same force of attraction exists between any material body placed on the earth's surface and the center of the earth. As an example: if one gram mass is placed on the ground, the force of attraction or pull on this mass is equal to approximately 981 dynes; a dyne equaling about 0.001 gram weight. Because the earth is not an ideal sphere, a gram weight placed at surface stations situated at different geographical latitudes will show slight variations in its weight or pull, depending on latitude, elevation above sea level, topography, etc., of the point of observation. Until recently pendulums and torsion balances have exclusively supplied the geophysicist with the values of gravity and the rate of change in gravity, but due to the rapid development and material improvements of the gravimeter a new trend in exploration work is noticeable.

The modern field gravimeter is a light portable apparatus well adapted for field work under the most difficult conditions. Because it requires but a few minutes to obtain the desired data at a station, considerable acreage can be surveyed during one day, thus reducing operating costs materially. The number of stations that can be surveyed by a modern gravimeter during one day depends chiefly on the condition of roads, station intervals, and the desired accuracy of the survey. However, the presence of the phenomena of drift in the instruments using elastic forces necessitates the repetition of the observation at the same station at certain time intervals. This repetition is introducing an element which somewhat retards the speed inherent in gravimeter prospecting. Nevertheless under favorable conditions an average of 25 or more stations can be established during one day, exceeding even the latest type torsion balance by about 17 stations.

Data obtained with a gravimeter are usually reduced to a sea level by an application of few correction formulae pertaining to height above sea level, topography, barometric pressure, etc. Moreover, the differences of these observed gravity vlaues and the theoretical values corrected for latitude ordinarily are computed and plotted as positive or negative anomalies, and the isonomalic lines, i. e., the line of equal anomalies, are drawn with the contour intervals, expressed in milligals or fractions thereof.

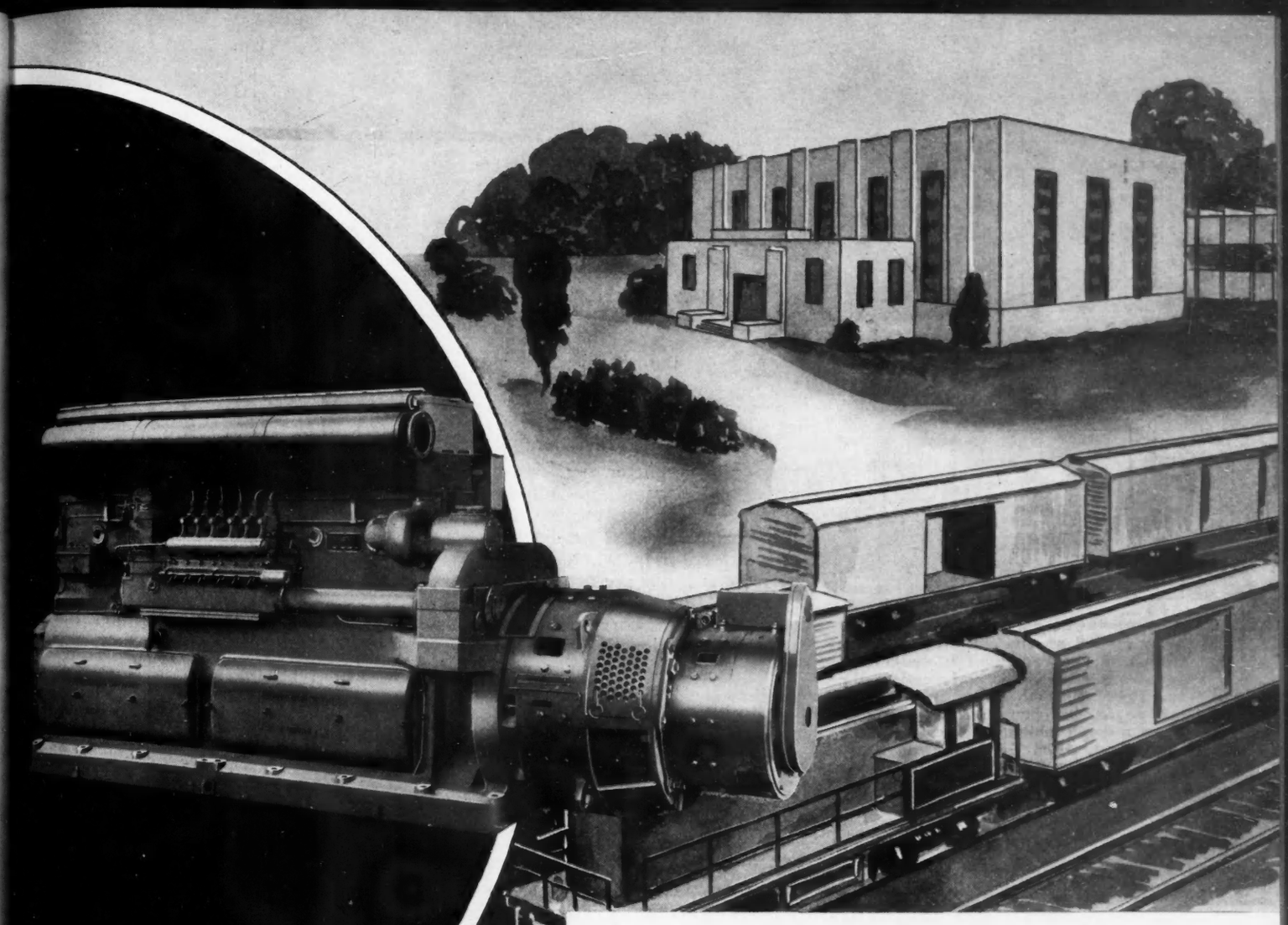
Table 1 gives a summary of the most important types of gravimeters in use today. In briefly discussing the principles of different types, it should be pointed out that several types of gravimeters are being used by different leading oil companies in this country, which, for obvious reasons, could not be included in the table.

A Gravimeter Survey of the Pierce Junction Field



Field Procedure

Before the gravimeter begins its actual work, the area under consideration must be surveyed by means of a plane table. Inasmuch as it is of considerable importance in the final computation of field data to apply corrections for variations in elevation, great care must be exercised by the surveyor to execute this type of work with utmost accuracy. A further duty of a surveyor's crew is to identify station sites by means of flags and stakes, so that the following instrument crew will not encounter any delay in its procedure. Due to the speed of the gravimeter it is necessary that several surveyor's



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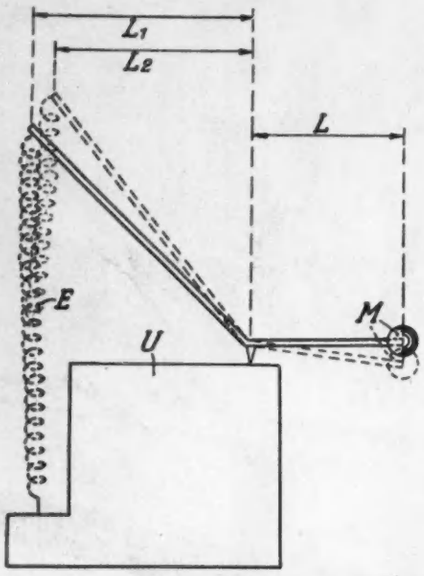


This gravimeter consists of a horizontal beam loaded on one side with a weight resting in the center of a wedge and suitable bearings. The other end of the beam is attached to a spring. Any change in the mass attraction brings about a displacement of the position of the weight, which is read through optical magnification on a scale.

This gravimeter is constructed in such a way that the position of a weight on a horizontal beam attached to a horizontal wire or spring supported at two points of equal distance from the beam is measured under the influence of gravity forces. The proportions of this instrument are extremely small, magnification being obtained by optical means.

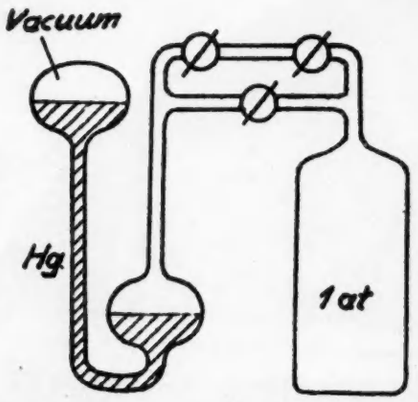
crews are working ahead of the instrument. The surveyor crew consists of the surveyor and the rod men, having at their disposal a regular passenger car.

As it is common with several other geophysical methods, observations are taken down in a note book by the operator and these results are turned over each evening to the party chief for computation work. The interpretation of gravimetric surveys is based on principles somewhat similar to those used in torsion balance prospecting. However, the interpretation of gravimeter data must be carried with caution, especially in the areas possessing reasonably strong regional gravitational gradients and in the territories where good oil bearing structures are often reflected in gravity highs and lows of small magnitude. After corrections for latitude and elevation have been made, the observed gravity values are plotted on a map which is then turned over to the responsible department for further consideration.

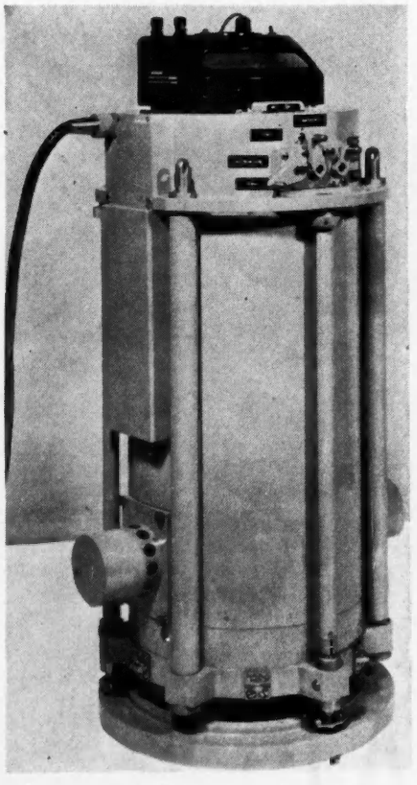
Ordinarily, the gravimeter is transported in a light truck. However, one of the newer instruments may be carried in a passenger car, it is so light.

Several new gravimeters have tripod arrangements in which the legs may be lowered to the ground through holes in the floor of the truck. This has the advantage of shielding the instrument at all times against destructive weather influences, and is a time saver. As soon as the truck arrives at a designated station, the observer and his assistant move the instrument from its riding position behind the driver's seat and place it on the tripod arrangement.

The instrument is then adjusted in such a way as to bring the indicator on the reading scale into full view if necessary. After the scale is read, a further reading is taken after a short interval so as to avoid errors and possibly increase the accuracy of observation. This procedure is repeated at several successive stations. After having occupied five or more stations, the instrument is returned to the base station for another check observation. The next step usually is to make a subsidiary base out of one of the later stations that is conveniently located. The survey then proceeds in the same manner from the subsidiary base as initially from the main base, check readings being taken at this base instead of the original one. This avoids long trips back to the main base for check readings.



This is a barometric type gravimeter, consisting essentially of a system of glass vessels and tubes partially filled with mercury. Any changes in the mass attraction underground brings about a change in the position of the mercury column in the glass vessels. This action changes the pressure in the glass tubes of the instrument, where a liquid column in a capillary tube regulates its position according to the pressure differences.



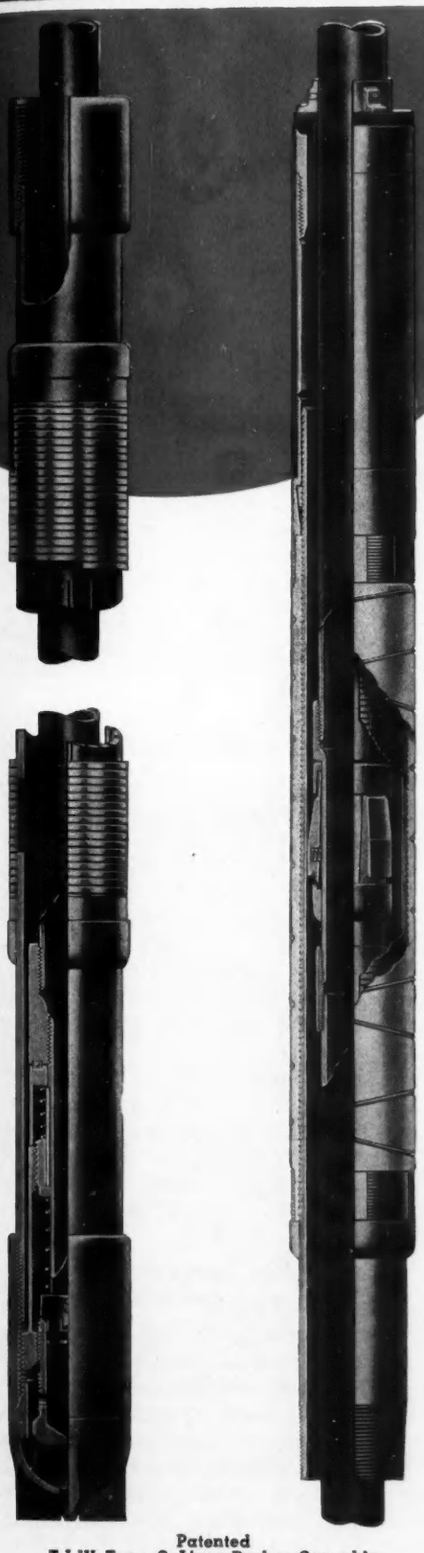
Here is a spring type gravimeter, as are the majority of instruments now available. A mass hanging on a vertical spring is equipped with a device for measuring the displacement of the mass electrically.

When you use the

T-I-W

"Type A"

LINER PACKER



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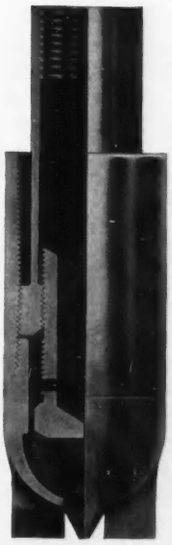

T-I-W Type A Back Pressure Valve Assembly

T-I-W Type A Setting Tool Assembly

T-I-W Type A Sealing Tool Assembly

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Safety Advantage Derived from Using Proper Devices

By JAMES I. POWELL,
Safety Engineer

A QUESTION of whether or not a device is proper from the safety viewpoint often turns into a controversial issue, which, in the end, terminates in an unsettled argument. And, it is with this type of issue that the oil field safety engineer and field supervisors should be most concerned, for discussions of this nature usually bring to light many reasons for the human element responsibility for accidents. Thus, when the nature of that responsibility is determined, the task of formulating appropriate safety training mediums can be conducted along a planned course instead of having to follow a trial and error procedure.

A statement has been made by a competent safety engineer to the effect that 85 percent of the cause of an accident is attributable to some phase of the human element. Or, in other words, 85 percent represents a lack of something that should be supplied through training. Any prescribed safety training that would fail to stress the importance of the safest possible procedure to follow in performing a hazardous task is a semblance of how the human element enters as a factor into the cause for accidents.

Safety Devices Appraised

The words "safety device" do not necessarily apply only to a few items that come first to mind at the mere mention of the name. Safety helmets, goggles, gas masks and safety shoes are naturally some of the items to which thought is first directed when reference is made to "safety devices." These as well as other more generally known devices have a definite function to perform, and that is as an accessory to the prevention of accidents. They should be used conscientiously while performing every task wherein better judgment dictates the presence of hazards from which protection is essential.

There are other safety devices, however, that as a general rule are not thought of as such; but are considered merely a part of the drilling equipment. Some of these so-called pieces of equipment or safety devices in the past have contributed toward seriously injuring a good many oil field employes. The reason in most cases existed in the fact that the safety devices or the means employed to do a particular job were not proper for the task they were put to. It has been tried and found that any similar device may be able to stand up and pinch hit for another device of proven ability for a while; but, the circumstances that test and prove its weakness will eventually disclose themselves at the scene of an accident. In other words, a pipe wrench having worn jaws can still be used to rotate pipe to some measure; but if an employe were balanced on a narrow scaffold 10 feet in the air and while pulling on the handle of that same wrench it gave way, and as a result that employe fell to the floor seriously injured—we would readily recognize the circumstances that prove the inefficiency of the wrench as a safe device.

The origin of an idea that is developed into a valuable safety device or procedure usually is traceable to some specific experience. Such an experience might have been acquired from the ramifications surrounding an accident in which someone other than the originator of the idea was injured. Or, on the other hand, it might be that the originator of the idea was injured personally or narrowly escaped being so. In either event, the need for a safer device and safer procedure in following out a given task was impressed firmly upon his mind.

It is not a cheerful thought to believe one's self a victim of an accident that was caused through using an improper device. This is true especially when it is known that such a device could have been made safe by giving its installation a portion of the time and effort that very often otherwise is wasted. Yet, there are many accident victims who are sufferring today because the proper safety device was not employed when, where and how it should have been.

Accident Victim Greatly Impressed

There is an oil field employe who once enjoyed the free use and natural flexibility of his right knee, but now that right leg is stiff from the hip to the ankle. He cannot now walk up steps with the same unconscious ease he once was accustomed to. He cannot climb a ladder, unless with utmost difficulty; and at one time he had pride in his ability to walk as far or as long as his physically perfect friends—through the woods and prairies—on the hunting trips that he most enjoyed. Now that old broken up knee is too weak and too easily irritated into a sickening pain to walk far without rest.

Relationship Between Accidents and Devices

Intermittently during the process of drilling an oil well, a particular practice becomes necessary to the continuity of drilling operations. This practice is commonly known as "making a rathole connection." And, in making a rathole connection, the practice comprises the "breaking out" or the unscrewing of the kelley-joint from the main drill string and "making it up" onto a single of drill stem.

The single, previous to making the connection, is inserted in a piece of

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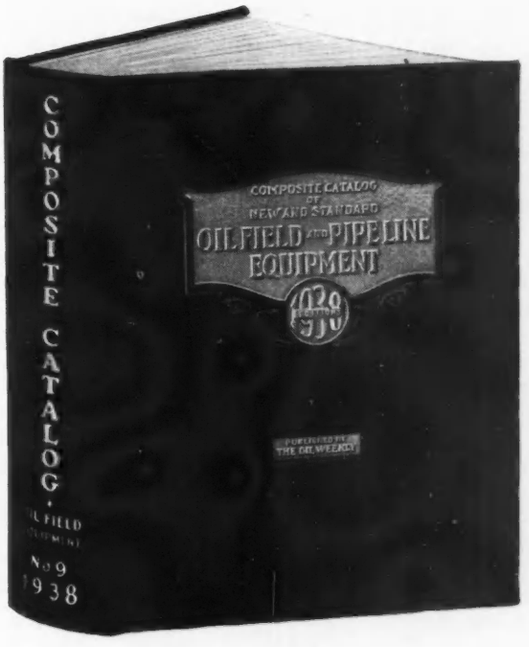

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casing which is vertically submerged in the surface terrain. This casing which is known as the "rathole" extends above the level of the derrick floor some eighteen inches. The angle or vertical slope in which the rathole is submerged coincides with a continuing downward line following the vertical axis of the kelley-joint while it is swung some six feet off its normal perpendicular center. With this angle arrangement, the pin threads of the kelley-joint and the box threads of the single of drill stem are in correct alignment to be screwed together.

The course-cut and tapering threads that are characteristic of tool joints make the task of screwing two of them together a minor exertion as compared to the task of making up threads which are finer and less tapering. Thus, during the process of making the kelly-joint onto the single of drill stem—once a rotating momentum is generated in the kelley-joint—it practically "makes up" under its own momentum.

The "fluid-seal" and "back-off-resistance" of tool joints exists in the manner of contact between the shoulders of the box and pin. Thus, to insure against the two coming unscrewed, the two opposing shoulders must be forced firmly together. And it is with the practice of forcing the two firmly together that a severe safety hazard arises.

When a single of drill stem is hoisted from the storage rack and inserted in the rathole, it has an elevator especially designed to fit beneath its upward extending attached box. The wings of this elevator rest on top of the rim of the rathole casing. The single within the rathole is free to rotate inside its elevator; thus, when the kelly-joint is swung over and its pin inserted in preparation to making the two together, the single must be held by some means to prevent its rotating. In most instances in order to accomplish this, a pair of chain tongs is placed about the box of the single and the end of the tong handle is secured. The manner in which the tong handle is secured to prevent its sweeping the derrick floor adjacent to the rathole is of considerable importance in the prevention of accidents.

A spinning line is used in many instances as a device or the means with which the kelly-joint is rotated while making the rathole connection. And a great deal, from a safety standpoint, depends upon how the cathead-end of the spinning line is manipulated. Or, in other words, the force and speed which is transmitted from the cathead through the spinning line to the kelley-joint by the operator is a factor of real safety importance. For it must be remembered that once the kelley-joint has generated a rotating momentum in equal proportions with an unsafe manner of spinning line operation—a flimsy and unsafe contraption will not check that momentum. And that is just what a pair of chain tongs would have to do in order to avoid at least one man being seriously injured.

In using a spinning line in making a rathole connection, one man manipulates one of its ends over the cathead; another man manipulates the other end which is wound about the body of the kelley-joint. The man stationed at the kelley-joint is necessarily standing in close proximity to the rathole casing and the handle of the tongs fastened about the single is about knee high of this man. Thus, should he be standing within the radial sweep of the handle, in the event it comes loose, he would very likely receive an injury about the knee.

The oil field worker to whom reference was made concerning his stiff knee was standing within the radial sweep of the handle of a pair of chain tongs when it came loose. The accident happened under similar circumstances as have already been explained; but what is more important now is to prevent even a semblance of such an accident from occurring to someone else.

Solving Accidents in Their Initial Beginning

This particular accident would not have occurred had an argument not ensued at the time the chain tongs should have been safely and permanently installed. The driller created the impression that, irrespective of everything else, he was intent on getting the drilling equipment set up and started at making hole in the least possible time. The one and only employee who had to face the particular hazard created by the tongs was, of course, the one man interested in seeing that they were installed in a safe manner. But there was also other work to be done, and the driller considered that work more important than the safe installation of the tongs. He, the driller, directed that the tongs could wait, but the man who worked in that hazardous position thought otherwise. As a consequence, an argument followed which resulted in the helper conceding to his superior and also still having to face the hazard which he sensed would inflict injury upon himself.

The driller buoyed the confidence of his helper by stating he would hold the handle of the tongs with his own hands and prevent the handle from sweeping the floor and causing injury. So, while making the connection, the driller held the end of the handle firmly against a vertical portion of the rotary. From all appearances, this manner of securing the handle seemed safe, but there were other factors which presented themselves only by the result of an act. And, there were three men whose each act in making the connection must be consistent with the other. In other words, if the cathead operator applied too much force and speed to the kelley-joint and that force was beyond that which the driller was expecting or was unprepared for, the driller might fail to hold the end of the handle. An impact too great on the tongs when the shoulders of the box and pin came together could either bend the handle of the tongs and shorten it too much to reach the support of the rotary; or, the handle could slip over the top of the rotary support. In either of these two cases, it must be conceded that human hands and actions cannot, in every instance, supply the safety that might otherwise be had.

There are several safe means of securing the handles of tongs used in connection with this particular practice. One is not used extensively and has not proved to be entirely practical. But this particular device has been found to be safe. The jaws which prevent the single from rotating are built into the rathole elevators and the wings of the elevator fit into slots in the rathole casing. With this sort of device there is nothing protruding which could cause injury.

Another means found to be used more generally is the use of a pair of heavy-duty chain tongs for this purpose. The tongs, usually a size No. 15, are taken to a shop where the handle is cut off. After a welded eye is made on the end of handle the overall length of tongs should be about 3 feet. A piece of cable in good condition is then threaded through the eye and fastened by means of two U-bolt clamps. The remaining end of cable is passed around one of the 8 x 10-inch floor sills at a point adjacent to the rathole and the end secured by means of two U-bolt clamps. The safety of the employee stationed near the rathole is dependent upon the holding qualities of the cable, clamps and eye in the handle of the tongs, plus consistent manipulation by the operator of the cathead end of spinning line.

Two Strikes Twelve Miles Apart Enhance Vicksburg Trend

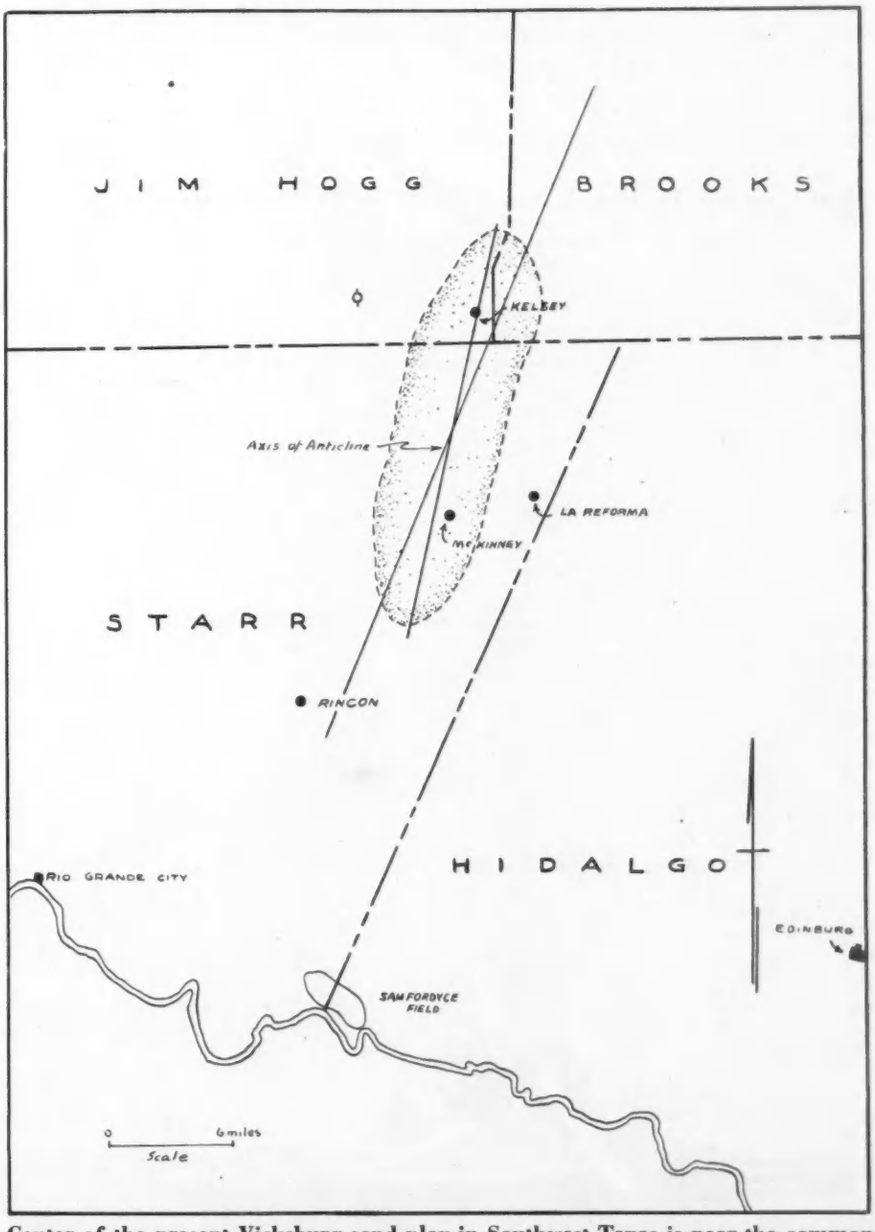
By EARL S. POST, Staff Writer

SOUTH TEXAS' largest oil field, and possibly the one of the outstanding strikes of the year in the Mid-Continent district, was considered probable late last week with two wildcats 12 miles apart being completed as oil producers. They are in Starr and Jim Hogg counties, and are on the Vicksburg trend.

The strikes are on an anticline, running near north and south, extending through southern Jim Hogg County and northern Starr County, just west of the east corner of these counties. They are on a prospect worked with various kinds of geophysical instruments, well checked with surface and subsurface geology and core drilled.

Sun Oil Company's Mrs. Amanda McKinney 1, after finding an oil sand at 4842-58 feet, was completing, while Humble Oil & Refining Company's Mrs. Anna Kelsey Bass 2, 12 miles to the north, was being gauged after finding its pay at 4730-48 feet. Both wells, producing high gravity crude, are either in the basal Frio or in the top of the Vicksburg formation. There is considerable difference of opinion as to the exact position of the sand, some giving its place in the geological column as being at the contact of the two zones.

The discoveries, however, are looked upon as having a tremendous bearing on the future of South Texas exploration. As pointed out in the June 13, 1938, issue of THE OIL WEEKLY, Vicksburg trend would be one of the major sources of South Texas crude oil reserves. At that time, Alice and East Premont, both



Center of the present Vicksburg sand play in Southwest Texas is near the common corner of Hidalgo-Brooks and Starr-Jim Hogg counties. The shaded area indicates general limits of Kelsey anticline, where two wildcat strikes have been made 12 miles apart. The two north and south lines running through Kelsey anticline indicate the possible axis of the structure. Many geologists are of the opinion the two discoveries will merge, forming a field that ultimately will cover a very large area.

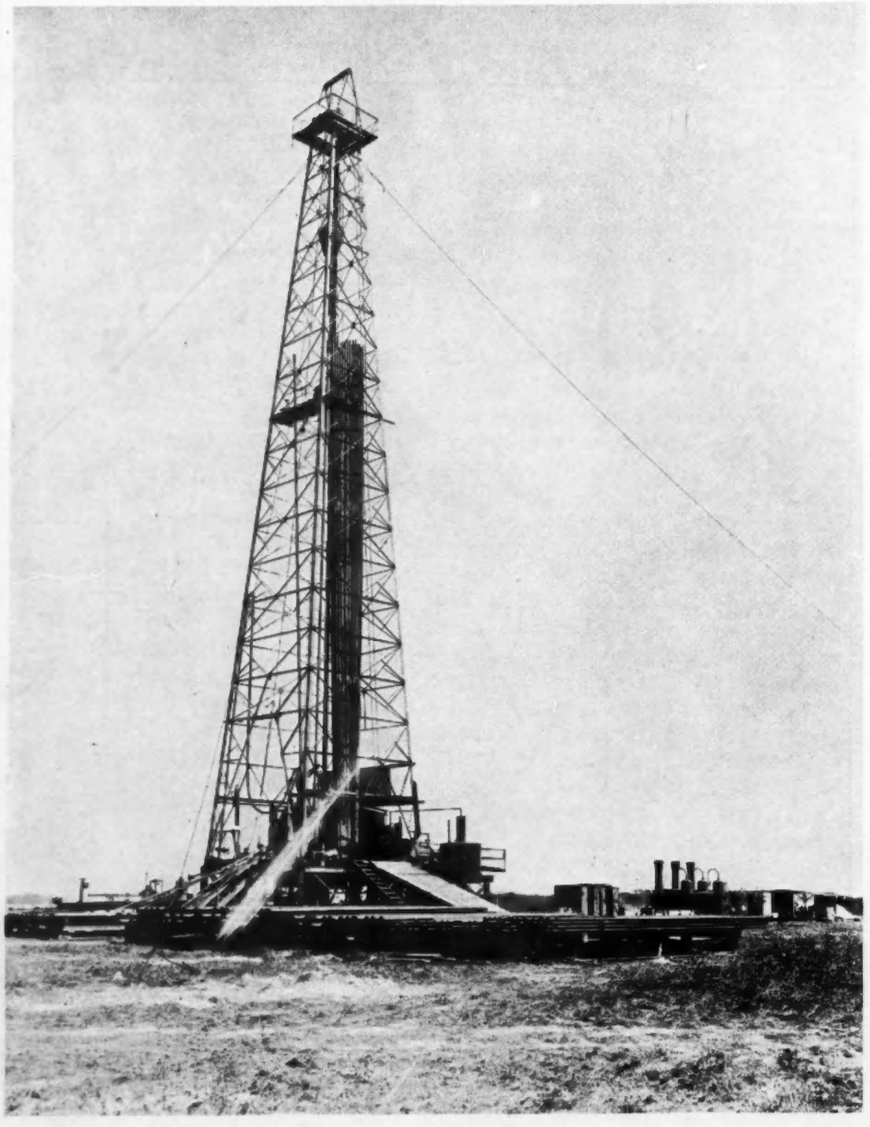
in Jim Wells County, were the only areas on oil production from that zone. Several other spots were productive with gas and distillate, but their importance was an unknown quantity from reserve standpoint. As a follow-up, gas and distillate production were uncovered in the La Reforma and Banders prospects, along the same general trend. Now, the McKinney Ranch and the Kelsey Bass Ranch come to light with probable sizeable crude possibilities. Still more prospects remain along this trend and their exploration may meet with similar success.

Major oil companies have been aware of these possibilities, and during the past few months have invested huge sums in blocks through this trend. It is estimated close to 2,000,000 acres are under lease to six companies through Jim Wells, eastern Duval, Jim Hogg, Brooks, Starr, and western Hidalgo counties, where this play has indicated its greatest possibilities. Much of this leasing, however, was done before the development program turned such attention to this key reserve.

Standard Oil Company of Texas, Humble Oil & Refining Company, The Texas Company, Magnolia Petroleum Company, Sinclair Prairie Oil Company, Shell Petroleum Corporation, Transwestern Oil Company, Sun Oil Company, and numerous independent operators hold leases within this play. Virtually all the acreage is held on commercial leases with primary terms ranging upward of five years. Most of these leases are from two to three years in age, with many of them much newer.

It can be seen readily that the development will be fairly well controlled by these lease holdings. In most cases, the fee ownerships are also in huge blocks, further lessening the demand for rapid drilling. In the case of the Humble-Sun strike, however, a fair amount of work is anticipated, as some of the acreage between the two discoveries is fairly well broken in fee ownerships, requiring offsetting.

Rotary rig used by Allen & Morris, San Antonio drilling contractors, in drilling Humble Oil & Refining Company's Anna Kelsey Bass discovery well. The concern previously had drilled a 7000-foot dry hole on the same ranch.



Humble Oil & Refining Company's producer is located 1399 feet west of the Jim Hogg-Brooks County line and is 1399 feet north of the south line of the Ranch in the San Rafael Grant, about 7 miles southeast of Agua Nueva. It is 30,000 feet southeast of the company's test on the Anna Kelsey Bass Ranch, abandoned at 7017 feet in the Yegua after finding several showings of both oil and gas at shallower levels and attempting to blow out at several points. The new well cored oil sand at 4730-48 feet and shale to 4754 feet, casing being landed on bottom. Perforations were made at 4744-48 feet and the well flowed 2 to 3 barrels of 45.92 gravity crude per hour through 5/32-inch choke with 1600 pounds tubing and 1650 pounds casing pressures. It showed a high gas volume. On drill stem test, bottom hole pressure was registered at 750 pounds, but likely is much greater.

Humble Oil & Refining Company's Kelsey Bass Ranch lease totals 30,300 acres. In addition, the company owns possibly 200,000 acres along the general trend. Immediately south of the Kelsey Bass properties, and almost offsetting the Humble concern's discovery, Sun Oil Company's huge block commences and trends southward along the structure a distance of approximately 18 miles. Other operators have holdings along this immediate trend and protruding into the Sun Company's properties. Sun Oil Company has in excess of 40,000 acres on the anticline south of the Humble producer and completely surrounding its discovery on the McKinney tract. In addition, the company has other holdings comparable in size with those of Humble Oil & Refining Company.

Late in the week, Sun Oil Company had gun perforated in the lower portion of the sand in McKinney 1 and the well was being completed. The test is showing for a producer of 44 gravity crude and is rated as being potentially much better than the Humble test. The well is located 1399 feet from the south and west lines of the A. J. Smith Survey No. 242, 30 miles northeast of Rio Grande City.

Approximately 10 miles farther southwest, Transwestern Oil Corporation et al's T. B. Slick School 1, Survey 266, was completed in a

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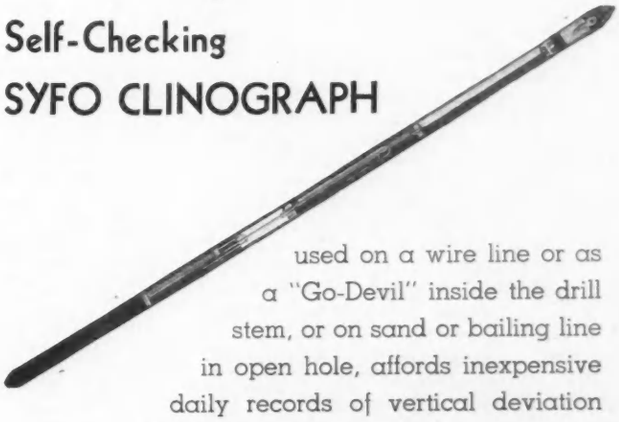

used on a wire line or as a "Go-Devil" inside the drill stem, or on sand or bailing line in open hole, affords inexpensive daily records of vertical deviation in drilling.

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Vicksburg sand at 4142-4259 feet, as a gas and distillate producer, opening the Rincon pool. This well is considered west of the general anticline upon which the Sun and Humble producers are located, but it is well within the group of structures receiving the intensively active leasing and exploration play.

Six miles east and north of the Sun Company's producer at La Reforma, Wheelock & Collins et al's F. B. Guerra 1-A was finished in a basal Frio sand at 5917-69 feet, flowing gas and distillate. This well likely is in the same position at the transition zone between the Frio and Vicksburg as the Humble and Sun producers.

The newness of the strikes and the lack of definite information has made definite correlation of these producing areas difficult. The best available data is that there is a steep dipping from the west to the east, with the Kelsey (Sun-Humble) anticline running along trend.

Work through various methods has mapped the regional feature at nearly 35 miles in length and several miles wide. Correlations, based on present information, are that the Sun and Humble producers are in identical sands or are immediately adjacent to each other. If the sand proves to be a solid body, it will likely provide South Texas' greatest oil field. If only in lenses, the extent of the field will depend entirely on the expanse of these lenses. In either event, howver, the discovery is heralded as important.

Anticlinal type of production has proved prolific along the new Vicksburg trend. Alice field, Jim Wells County, which has its Vicksburg sand production at 5300 feet, already is about 5 miles long, northeast and southwest, and has not been defined to the southwest, its present trend of exploration. East Premong, a 6600-foot Vicksburg area, is confined to three wells, but has two outposts drilling which will add 2 miles to production if successful. Bandera, another anticline along the same trend, is a gas area in the Jackson horizon, but flank drilling is under way to determine its oil possibilities. At the extreme south end of the Vicksburg trend and on the Hidalgo-Starr-Mexican line, Samfordyce field has several gas sands in the Vicksburg formation with only a slight bit of exploration of the anticline's deeper possibilities.

The rise of the Vicksburg trend's fame has been over a period of several months. Many almost fantastic predictions of the area's possibilities have been made during this time. Today, the Kelsey anticline gives promise of fulfilling many of these.

One obstacle arises in this program: failure of accessibility. Great reserves are being developed at tidewater or in the immediate proximity of pipe lines. This area is without these. The nearest pipe line is at Samfordyce, nearly 40 miles to the south, and that is a 5-inch system owned by Valley Pipe Line Company, which has an outlet at Brownsville-Port Isabel deep water port. This would mean that a field of major proportions would require the construction of a system some 125 miles to deep water port at Port Isabel-Brownsville port or more than 100 miles to the major trunk lines in the Mirando district. Other facilities lacking are all-weather roads, railroads, and supply houses within miles of the field. Even towns are few and far between, and their population constitutes hardly more than a general storekeeper. Opening of a major oil field in the virtual wilderness, therefore, would pave the way for another mushroom development familiar to oil booms.

Elmer Schmidt, Pioneer Gas Engineer, to Speak at Annual Gas Convention

UNDER the subject "Why Not Eliminate the Waste?", Elmer F. Schmidt, vice president and operating manager of Lone Star Gas Company, will discuss certain phases of repressuring and re-cycling of gas in his paper to be presented before the Natural Gas Department at the Atlantic City convention of the American Gas Association, October 10-13. He will discuss the subject of repressuring as a conservation measure and plans to present figures on the profits which can be expected from this procedure.

Schmidt probably will present results of studies made by the Lone Star Gas Company under his supervision over a period of several years. According to the company's engineers, the importance of the conservation problem may be recognized when considered in its relation to the total production of all the fields in the United States.

Schmidt was born in Binghamton, New York, in 1889, and was graduated from Cornell University. He has been with Lone Star Cas Company since 1918 and in his present capacity has executive supervision over the production and transmission division of one of the largest natural gas systems in the Southwest, including the company's more than 4000 miles of transmission pipelines, its 20 compressor stations, and operations in 51 gas fields embracing more than 1000 wells in Texas and Oklahoma.

His first natural gas work after receiving his civil engineering degree in 1912 was with the engineering department of Ohio Fuel Supply Company at Charleston, West Virginia, remaining there until 1913 when he become associated with Northwestern Ohio Natural Gas Company at Toledo, and with Fayette County Gas Company at Uniontown, Pennsylvania, during 1914. In 1915 he went to the engineering department of Ohio Fuel Supply Company at Columbus, Ohio.

In 1917 he was transferred to the gas measurement department of that company. While in that position he aided materially in developing the orifice meter recording mercury differential gauge for high pressure gas measurement; and the gas density balance used widely today in determining specific gravity of natural gas. The modern science of accurate and dependable high pressure natural gas measurement owes much to this early experimentation and development work in which Schmidt engaged.

In 1918, when he joined Lone Star Gas Company, Schmidt was given charge of the gas measurement department. In 1919 he became chief engineer and was made general superintendent of the company in 1920. He was elected to the board of directors in May, 1935, and was then elected vice president with his present responsibilities.

ELMER F. SCHMIDT

—Rector

WORLD DEVELOPMENT and TECHNOLOGY

Trinidad Review

Edited by
WM. V. GROSS, Associate Editor

Production increases though footage drilled shows decline . . . Technical advancements follow closely those of United States . . . New field looks large

TRINIDAD'S oil industry on the whole is continuing to progress very well. Production results now available for the first six months of the year show that an increase of 239,869 barrels of oil has been obtained as compared with the results for the last six months of 1937, this being achieved along with a decrease of 15,298 feet on the total depth drilled in all wells during the period under review.

Second Deep Test

On the other hand, the half year also witnessed the drilling of another 9000-foot well, the first being one in the Fyzabad area, which was drilled to 9039 feet during 1937. Enhancing this creditable achievement is the fact that an appreciable portion of the credited footage for the first half of 1938 has been made in purely wildcat territory.

The accompanying graph has been prepared with the idea of showing clearly the tie existing between additional footage drilled and additional production obtained, based on average half yearly results taken back from 1934 to the present time.

The comparison of actual operating results between the last six months of 1937 and the first six months of 1938 just passed is as follows:

	Last Six Months 1937	First Six Months 1938
Total Footage Drilled	482,252	466,954
Number of Wells Completed	139	142
Total Production—All Fields	8,213,364	8,453,233

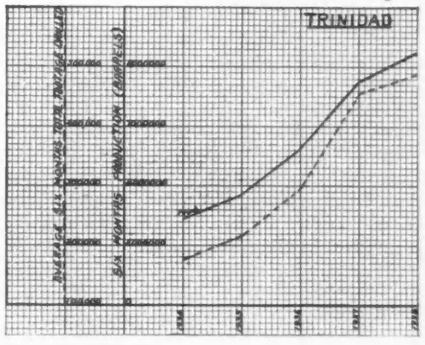
The trend of monthly production has also been noticeably steady. Actual figures are given hereunder:

Monthly Average for last six months of 1937	Barrels
	1,368,894
1938 January	1,378,021
February	1,304,819
March	1,438,436
April	1,418,825
May	1,481,285
June	1,431,476

It will be seen from the above that the island's monthly total stepped up during March, 1938, from the 1,300,000 stage to the 1,400,000 stage, which place it seems to be holding steadily. It is very likely to substantially improve during succeeding monthly periods.

Technique Improved

The continuous trend of technical efficiency in operations within the industry is also to be commented upon as an important feature of Trinidad's progress. There are ever growing evidences of a flow of technical progress



Showing tie between additional footage drilled and additional production obtained.

on local fields, following very closely the latest advancements made in the United States. There is more and more extensive use being made of the latest scientific instruments for determining essential characteristics of operating conditions: Advanced cementing methods are constantly being adopted and increasingly difficult problems of intermediate water in oil sections are being successfully handled. Closer attention is being paid to studies of reservoir conditions and the establishment of comprehensive laboratories for core analyses and bottom-hole pressure data research work to aid in the scientific all-around standard aimed at. There have been some experiments with gravel-packing as an aid to oil production. On the whole, the trend of technical progress is such that a dry hole today is not quite the dead loss it used to be before, in that nowadays it is made to yield information which is of very definite use in planning future development work on a sound basis.

Discovery of New Production

Of major importance with regard to establishment of new natural reserves of petroleum in Trinidad is the great "Point Ligoure—Coora" Fault which stretches right across the southwestern toe of the island. This fault has come into great prominence of late on account of the results obtained from exploratory drilling by two companies on lands adjacent to the fault.

Trinidad Petroleum Development Company's discovery well at Coora was a small producer located within 2300 feet north of the surface trace of the fault. Information from this well apparently indicated drilling closer to the fault, with the result that better and better production seems to be obtained the nearer to the fault the wells are located.

Subsequent completion by Antilles Petroleum Company of a small producer at Point Ligoure, on the southern side of the fault, is considered to have established the theory that production reserves exist on both sides of the fault.

May Be Another Fyzabad

With just a few wells on production in the Coora field it is understood that the Trinidad Petroleum Development Company has already obtained a production in excess of present daily pipe line capacity available (about 7000 barrels). It is a controversial point as to how much new acreage has been proven up by this drilling, but it is believed in some quarters that the field is capable of a potential comparable to some of the best sections of the Fyzabad area. The production comes from Cruse horizons.

Geologists believe that this Point Ligoure fault is the chief channel through which oil from Cretaceous source rocks has migrated upwards and so saturated the shallower sands touching the fault. The opinion has been given that oil will be found all along the trace of the fault—adjacent to and on either side of it, regardless of the structure of the existing sediments.

Much Wildcatting Expected

Almost all the land bordering this fault is under lease to either one of three companies, and already one of the larger holders is engaged in cutting a new road in order to be able to go into this territory to test the possibilities of its province on either side of the

fault. It is thus eminent that the immediate future will see quite a lot of exploratory drilling to investigate the real possibilities of this area, and the results might add several million barrels to the island's reserves.

New Commercial Field

The Penal field operated by United British Oilfields of Trinidad, Limited, has now declared itself as a commercial factor in the oil producing business of the island. A pipe line right across the country from Penal now brings the field's production to the company's refining plant at Point Fortin. This field has been operating for about two years, the wells having been drilled, tested for production and then shut-in pending completion of the expensive pipe line which evidently had to await the proving of sufficient production to justify the laying down of it.

Three or four deep exploratory wells have also been drilled here but as yet no definite news can be given as to the measure of success met with. It is understood that some of the wells in this new shallow field have encountered sand thicknesses of as much as 400 feet.

Apropos of this, along with news of increasing production on the Point Fortin fields, comes the news that United British Oilfields of Trinidad, Limited, is contemplating considerable expansion of the refining plant at Point Fortin and that this work (which will most likely entail reclamation of some great portion of the water front) may shortly be put in hand.

Exploration Activities

The most important news of exploratory interest at the end of the half year under review could be summarized as follows:

Cedros: The deep exploratory wells drilled on this southwestern peninsula have apparently not yet provided sufficient inducement for any very intensive development work there. This field has already been operating for about two years. Exploration efforts in this territory are continuing apace.

Siparia: Trinidad Consolidated's No. 2 at Siparia has proved another failure and was reported abandoned at 5000 feet. This company, however, has had some heartening successes in the Fyzabad area.

Another Fyzabad success is reported in favor of the recently organized Zenith Oil Company which, it is understood, has already made a commercial producer. The well has been reported shut-in pending completion of pipe line facilities to one of the large Fyzabad operators who is buying the production.

Apex (Trinidad) Oilfields were reported at the end of the period to be laying service lines from Fyzabad main field to drill on newly acquired lands southwest of Siparia.

Morne Diablo: Trinidad Leaseholds was making preparations to commence actual drilling on another deep test in the Morne Diablo district where the company has drilled one or two deep unsuccessful holes.

Erin: Antilles Petroleum Company found some small oil shows at shallow depths in Erin 1, but the wildcat later ran into a series of high pressure salt water sands. The well was held up with frozen drill pipe and the hole was later abandoned.

Moruga: Petroleum Options, Limited, has apparently come back into active drilling life with a test at Moruga, where news of high pressures and some blowouts have come to hand. The company has been reported moving to a new shallow location in the same territory, the first well having been completed unsuccessfully.

Northern Basin: The Northern Basin, a definition of which territory was given in the last Trinidad review appearing in THE OIL WEEKLY February 21, 1938, will shortly be seeing the commencement of actual drilling operations. Trinidad Northern Areas, Limited, (the joint organization of Trinidad Leaseholds and United British), was reported moving in a heavy Diesel powered drilling unit of latest design to a location near Talparo, 10 miles from the agricultural town of Arima. Arima is now already beginning to take on the appearance of a growing oil town.

Marine Concessions—No Merger Yet

The 7 Trinidad oil companies which have applications pending for concessions to explore for oil in the territorial waters of the island have not yet agreed on the suggestion made by the colonial government that they should merge themselves into one joint operating company for unitary operation of the marine areas. The Anglo-Iranian Oil Company, in which the British government has a substantial shareholding, is the eighth applicant concerned.

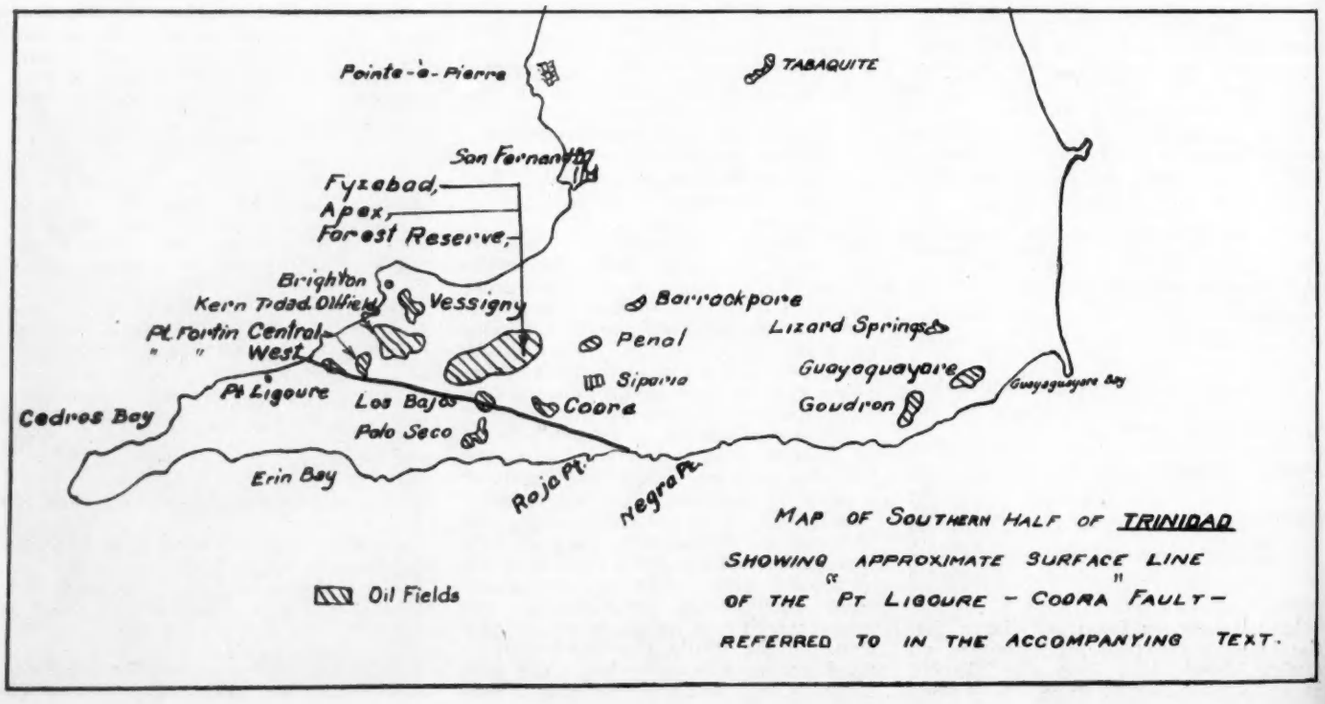
It is now understood on good authority that the companies consider the suggestion impracticable from a working standpoint. All the Trinidad companies are apparently anxious to get some allocation for individual operation, and there is little likelihood yet of an agreement being reached along the lines suggested by the government.

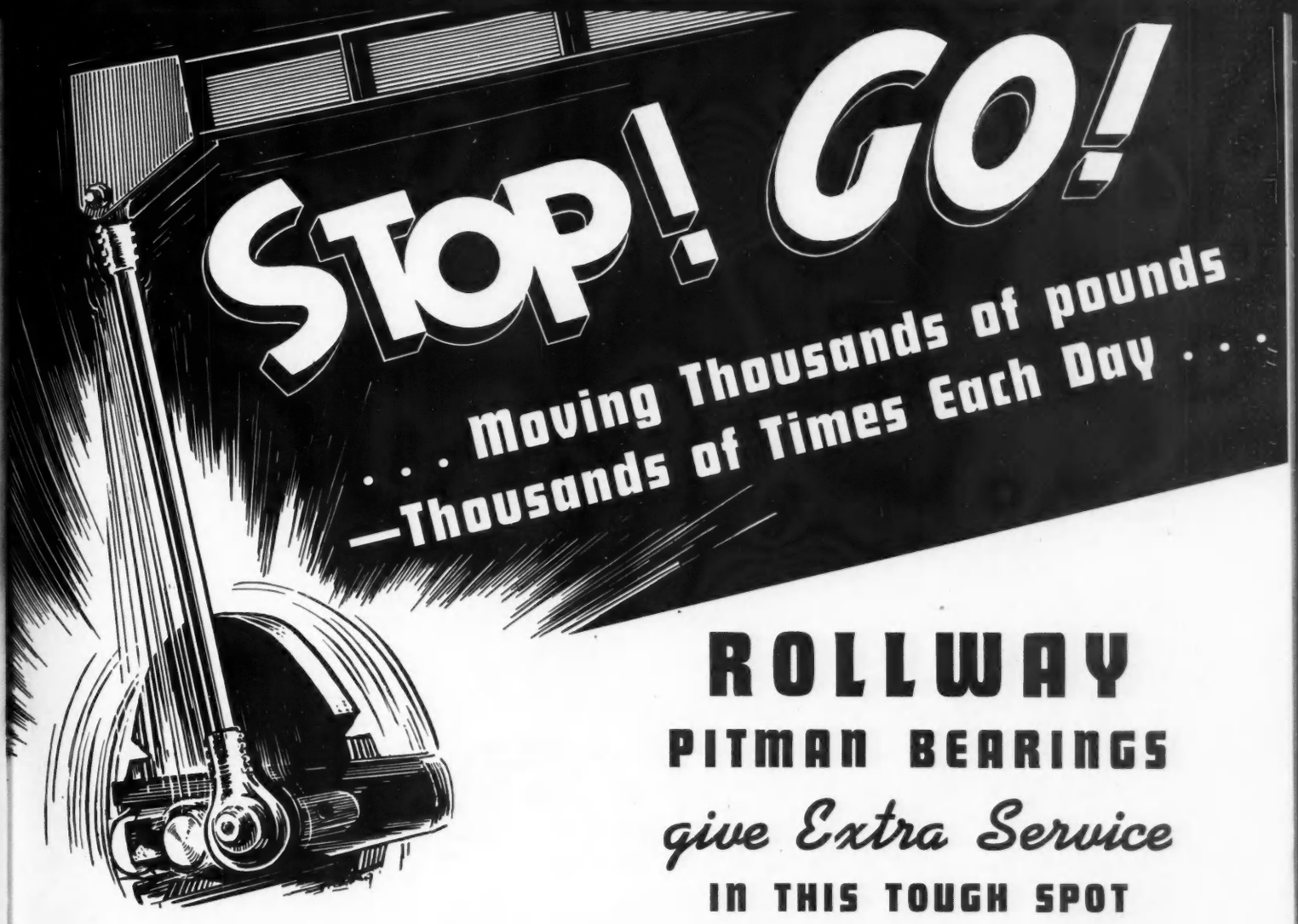
The secretary of state for the colonies, speaking some three or four months ago in the House of Commons, laid down the merging of the applicant companies for the concessions into a single operating company as the only condition under which the government proposed to grant these marine oil concessions.

The government view is that it is almost impossible equitably to allocate the marine concessions among the individual companies, and that, in view of the large financial outlay necessary to do the job properly, a joint company is the best and only solution.

Deadlocked

This divergence of views has already caused several months of delay and, at the time of writing, the whole matter is practically at a deadlock. It is understood that the government is again





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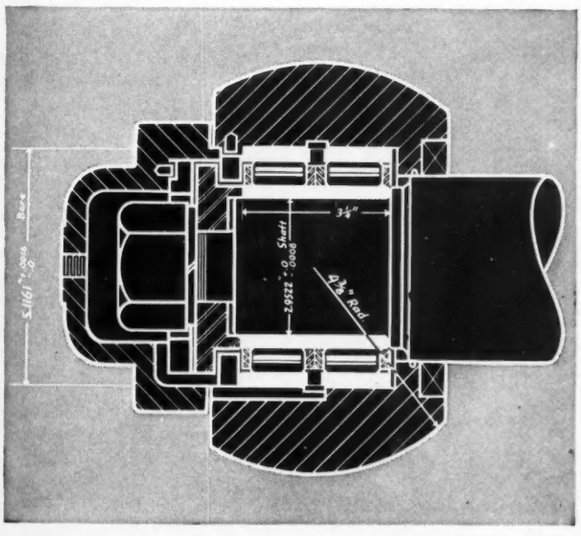

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BEARINGS

endeavoring to get the companies concerned together.

In the meantime, on the other hand, the annual report for 1937 of the Trinidad government lands and survey department, recently published, showed that during 1937 some 52 points for the control of oil mining development over the marine areas were fixed by triangulation and by primary traverses run along the coast line between La Brea and Erin, a distance of 50 miles. Quadripod beacons constructed of angle iron and 15 feet in height, have been erected at 24 of these points, all marked with solid concrete pillars. A large portion of this work was carried through thick tropical forests and it was sometimes even found more economical to erect observation towers over the top of the surrounding trees. One such tower, 60 feet high, has been erected on the main ridge south of Siparia.

All this activity gave point to the previously held belief that the final allocation of the concessions would have been in a great measure dependent on the ownership of the oil concerns controlling the corresponding shore line. The recent statement of the colonial secretary of state, however, has apparently brought the matter to a point approaching a deadlock, and the final solution of this situation cannot by any means be predicted at this moment.

Deposit Required

A government decree which came into force during the half year stipulates that all companies operating in the island are required to deposit with the colonial treasurer $10,000 as guarantee of their ability to carry on operations in a proper manner. This is in addition to the regular annual operating fee which every company always paid into government revenue for the privilege of operating on the island. It is believed that the new $10,000 stipulation is aimed at discouraging sundry small concerns which invariably spring up over the island endeavoring to start an oil company without anything like adequate resources, thus militating against the general welfare of the industry.

Labor Conditions

Labor conditions within the industry with regard to the island-wide strike of June, 1937, which arose over an oil field wage dispute and which resulted in several fatalities cannot be said to be settled. As a result of negotiations between the representatives of the companies and the Workers' Union, a mutual request has been made to take the matter to arbitration. The essential terms agreed upon are as follows:

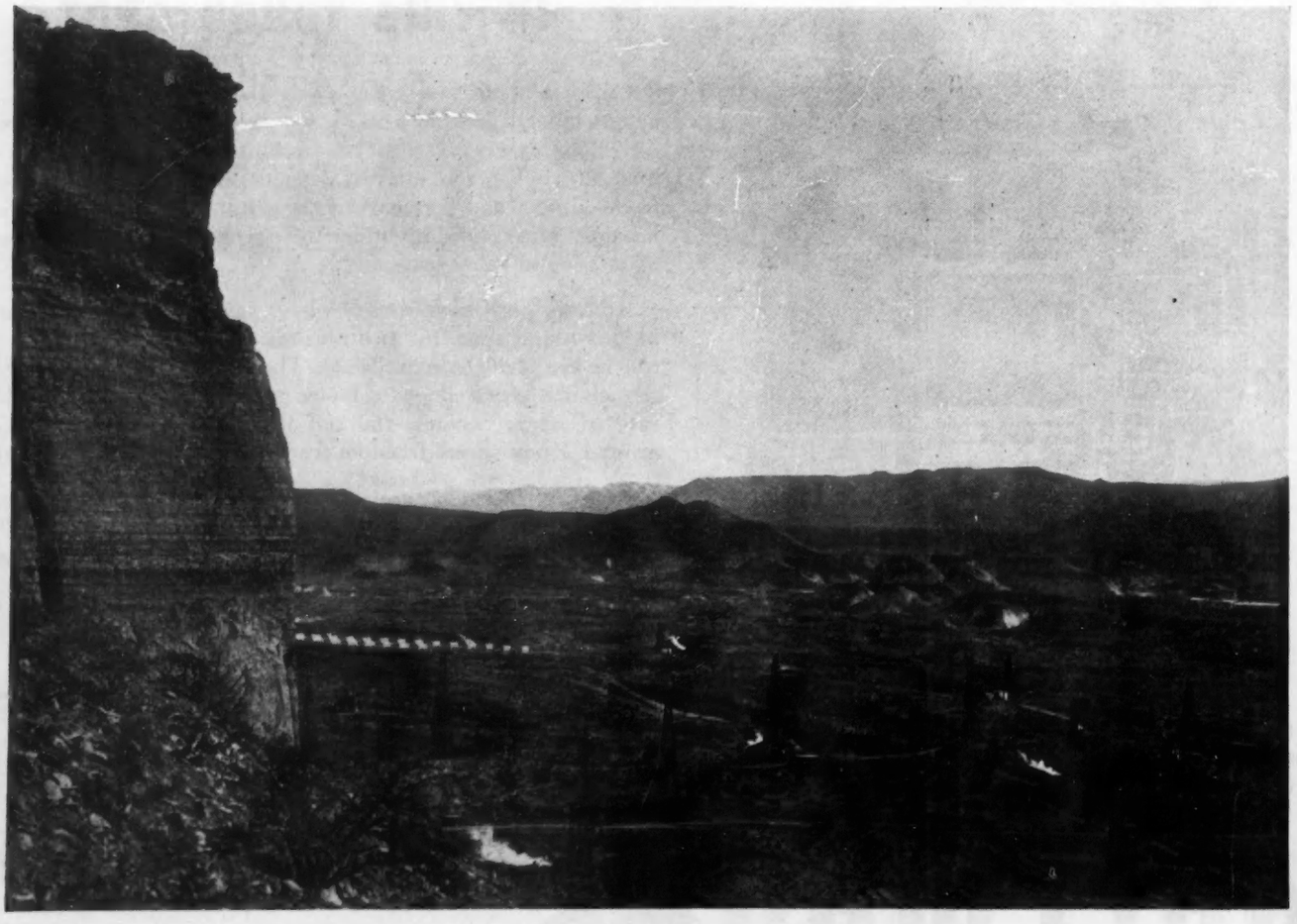
The parties agree to: (1) Arbitration by a tribunal constituted of an independent chairman and four arbitrators, two of whom shall be nominated by or on behalf of the union and two by and on behalf of the association. The arbitrators nominated by the parties shall be British subjects. Both parties agree that they will jointly request the governor to appoint a chairman from England who shall be a trained arbitrator with long experience in the settlement of industrial disputes. (2) To hold the sittings of the tribunal in public, the date of hearing not to be earlier than November 15, 1938. (3) That the award shall be binding for 12 months, terminable at any time thereafter upon three months' notice given by either party to the other.

The union claims that the award should be retrospective with effect as of July 1, 1937 (the time at which their demands were presented), but the employers' association is willing to make the award retrospective to April 1, 1938, only. Both parties agree to give the tribunal power and discretion to make any award effective at either date, or as at any immediate date.

Right at the close of the half year there arrived in the island the new governor, Sir Hubert Winthrop Young, former associate of Lawrence of Arabia, replacing Sir Murchison Fletcher who resigned soon after the June, 1937, labor disturbances. The new governor will be required to concentrate largely on matters affecting the oil industry and has already begun familiarizing himself with conditions first hand.

Expect much of Tupungato, Argentina's new oil field

Word from Buenos Aires is that Tupungato, Argentina's newest field, promises to contribute considerable crude oil to the nation's production



Partial view of Yacimientos Petroliferos Fiscales' Comodoro Rivadavia, the greatest producing field in Argentina.

during the remainder of 1938. The new field, located in Mendoza, in the western part of the country, is said to have a horizon at about 5890 feet capable of yielding initials as high as 100 barrels an hour. Tupungato wells have been shut in pending provision of additional storage facilities.

Dhulian field expected to be greater than Khaur

Attock Oil Company appears to have another Khaur field in the newly proven Dhulian field of the Punjab. Khaur has been producing over 20 years, reaching its peak of about 1200 barrels daily in 1929. It has settled down to 200 barrels, or less, per day. The company's production in India jumped from 32,526 barrels in June to 72,865 barrels in July, due solely to new production in Dhulian, seven miles west of Khaur. Dhulian structure is said to be similar to that of Khaur in appearance and length, but is much wider than the older structure. Khaur has produced about 4,000,000 barrels. Dhulian is expected to exceed that figure by a considerable margin. Production is from below 7500 feet.

Mexican Situation

Disappointment over delay in answering Mexico's latest note . . . Companies must pay $30,000,000 to workers, court rules . . . Government is overdrawn

CONSIDERABLE disappointment was felt in international oil circles September 9 because the United States had not answered Mexico's second flat refusal to do anything promptly about payment for lands expropriated from Americans. It was believed that if Secretary of State Cordell Hull took a firm stand for equitable treatment in the matter of indemnity for the above lands, a definite precedent would be established for dealing with the $400,000,000 of foreign controlled oil properties confiscated by President Cardenas of Mexico on March 18.

Diplomatic correspondence between the United States and Mexico has reached a point where one of the two must back down or subject itself to retaliatory economic measures. Washington gossip is that the patience of the state department has just about worn threadbare.

Socked $30,000,000

The federal supreme court of Mexico ruled September 6 that the expropriated British and American oil companies must pay ex-employees $30,000,000 indemnification. This ruling upheld the conciliation board's cancellation of work contracts, an action that the workers requested on the eve of expropriation. The court demanded payment to each employee of three months' wages, plus 20 days' pay for each year of service.

The facts that the federal supreme court held that the companies' rebelliousness in refusing to abide by the board's general wage award constituted automatic breach of contract, coupled with the announcement of President Cardenas that indemnification for expropriated properties will be paid only on the basis of the companies' actual investment, excluding wells and subsoil rights (which Cardenas contends belong to the nation), indicate that compensation to the oil companies will be next to nothing.

Temporary Victory

On the other side of legal activities, the State of Tamaulipas will appeal to the federal supreme court of Mexico because 12 operators obtained during the week an injunction from the Tampico district court against Tamaulipas state's collecting fines of $110 each from them and taxes on the buying and selling of oil since 1933. The companies, which were able to establish to the satisfaction of the court that they had neither bought nor sold oil in Tamaulipas during that period, are: Internationas Petroleum Company, Kern-Mex Oilfields, English Oil Company, Panuco Drilling Company, Hamilton & Devine, G. L. Christie, H. G. Venable, R. G. Piper, Compania Inversiones Azatlan, Companias de Inversiones y Valores, and Compania Unida de Inversiones.

Get Right to Strike

It has been generally conceded that the Mexican government had an ace up its sleeve in conduct of the oil industry because of the fact that oil industry workers since expropriation have been federal employees. For them to have struck would have been tantamount to insubordination or rebellion. Hence, announcement that the Mexican senate approved September 7 a bill giving federal employees the right to strike is construed in some quarters as weakening the government's control of the workers. The bill awaits only the executive signature to become law.

The government controlled press notwithstanding, examples are numerous in Mexican oil fields of where workers are distinctly dissatisfied with the way things have been run since March 18. Complete paralysis of the industry through strikes is not too remote a possibility if demands are made on the government for much higher wages. That such a demand will be made has been rumored.

In the Red

The Mexican government is $68,000,000 overdrawn, Cardenas told his congress recently, just after he had promised the people of Mexico, in the same speech, that the government would peg the dollar at a reasonable rate as soon as the "artificial" means for placing the dollar at so high a level disappear. Total bank deposits in Mexico amount to $686,000,000, of which $213,000,000 is in sight, Cardenas said.

Appeal for Help

Asserting that they are in a difficult situation because they find it hard to market their products, members of an association of small scale oil producers in Mexico are negotiating with the ministry of finance for help. The association asks that Petroleos Mexicanos buy all of its products, or, if that is not possible, purchase at least enough to enable the association members to pay their taxes until better times return. Prior to expropriation the association members sold all of their production to the companies Cardenas confiscated.

Cause for Delay

Washington's extreme caution and patience in diplomatic dealings with Mexico arises from consciousness that precedent for future relations is being established. Western hemisphere investments of Americans south of the Rio Grande are estimated at something over four billion dollars, only a portion of which is oil industry investment. But the safety of a great majority of that money in the future hinges upon the outcome of current diplomatic exchanges between the two countries.

U. S. Mexico's Best Customer

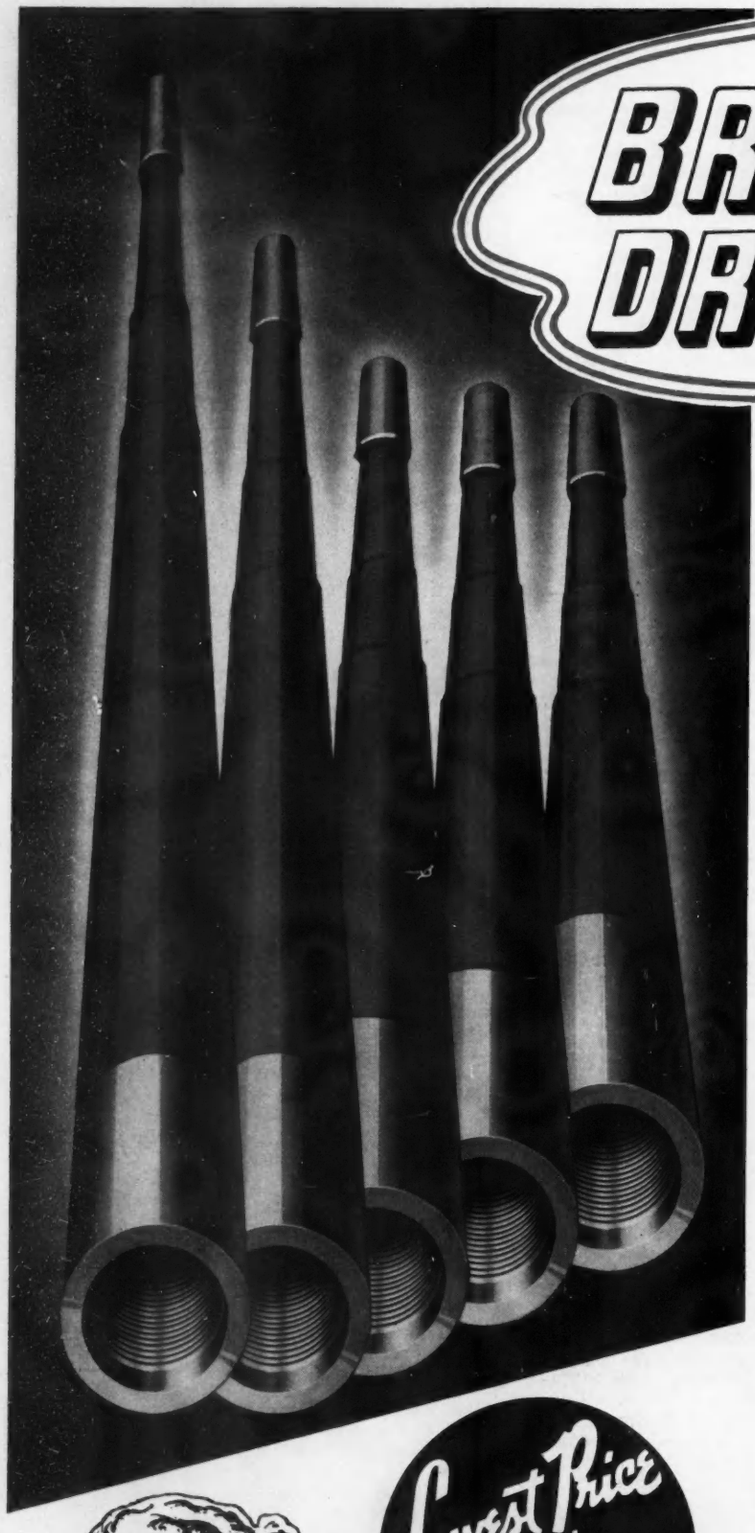
Figures on Mexican exports for 1937 showed that United States buys more than five times as much from Mexico as Mexico's next best customer, which, ironically enough, is Great Britain. Purchases from Mexico in 1937 by the United States amounted to $501,763,000; those by Great Britain, $98,562,000. Germany was third, buying $83,884,000 worth of goods. The grand total of Mexican exports in 1937 was $892,389,000, meaning the United States bought over half of Mexico's exports.

Petroleos Mexicanos, the official government oil company, announced during the week it is completing arrangements to resume large scale manufacture of aviation gasoline, a function that has been suspended since expropriation, necessitating heavy imports of the product from the United States. The arrangements consist of reconditioning government and expropriated refineries. The announcement stated that foreign technicians, mostly Americans and Germans, are to be imported to superintend the operation.

Two tankers of Mexican crude arrived in Houston from Tuxpam recently; one that docked September 3 carried 35,188 barrels, the other, which arrived September 5, carried 89,407 barrels. The tankers Myriam, Marit and Vanja were reported recently loading oil in Tampico for Germany.

Not for Quick Delivery

Mexican newspapers said September 3 that Petroleos Mexicanos had landed an order for 290,000 barrels of oil by being low bidder on requirements of Uruguay. A cable from Montevideo on September 7, however, read as follows: "We have purchased no Mexican crude, but fuel oil, from 36,000 to 45,000 tons for 1939. Price confidential." The last two words of the cable might be taken to indicate that Mexico is underselling the market. Unofficial advice is that Mexico has already indicated to Japan that she would cut under prices posted for export at California ports.



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Local 2-1431 and 2-1432

AND BRANCH STORES

MEN IN THE INDUSTRY'S NEWS

JAMES A. VEASEY, VICE PRESIDENT AND GENERAL COUNSEL FOR THE CARTER OIL COMPANY, TO RETIRE NOVEMBER 1

L. G. OWEN WILL SUCCEED HIM AS FIRM'S GENERAL COUNSEL

JAMES A. VEASEY, vice president and general counsel of The Carter Oil Company, Tulsa, will retire November 1. He has been with the concern 23 years and will reach the retirement age, 62 years, October 11. His retirement, however, will not end his work in legal activities as he will conduct a biennal semester on oil and gas law at the University of Michigan, his alma mater. In addition he will begin compilation of a complete text book on the statuatory conservation of oil and gas.

His knowledge and work within the legal section of the oil industry has given him an outstanding place in the industry and in the American Bar Association, at whose last convention he delivered a paper on "Compulsory Pooling of Adjacent Tracts into Drilling Units to Conform to an Established Well Spacing Plan."

Veasey was born in Louisville, Kentucky, but was reared across the Ohio river at Jeffersonville, Indiana. He was educated at the University of Michigan where he took his A.B. degree in 1900 and his degree in law two years later. His legal work took him to Bartlesville, Oklahoma, where he was in general practice until November 1, 1913, when he joined The Carter Oil Company as general counsel.

His retirement will bring L. G. Owen to the post of general counsel for the company. Veasey and Owen were partners in general practice at Bartlesville, and a year after Veasey joined The Carter Oil Company, Owen became a member of its legal staff.

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JAMES A. VEASEY

CARL CLEMONS, assistant drilling superintendent in the Gulf Coast territory for Gulf Oil Corporation, returned last week to Houston from a three weeks vacation tour by automobile in Tennessee and North Carolina. Accompanying him were his wife and his mother, Mrs. W. H. Clemons. The trip, which covered 3000 miles, included a visit to Clemons' birthplace in Tennessee, the first since he left it as a five-year-old boy and his mother's first return to the old home since coming to Texas. They returned via Ashville, Atlanta, and Southern Mississippi.

RICHARD J. DEARBORN of New York, president of Texaco Development Corporation, recently made a business trip to London.

DR. RUDOLPH SCHIDER of Mexico City, executive of Mexican Eagle Oil Company, recently went to England on vacation.

H. M. MURRAY, formerly district field superintendent of El Plan district, Isthmus, Mexico, for "El Aguila," has sailed from England for Port-of-Spain, Trinidad, where he will take over the duties of assistant drilling superintendent for United British Oilfields of Trinidad, Ltd.

J. N. GRIFFITHS, assistant president of Shell Union Oil Corporation, New York, is on an extensive tour of his firm's Texas sphere of activity. Griffiths came to the United States eight years ago. On one leg of his travel he was accompanied by C. J. Ward, chief exploitation engineer, and K. S. Ferguson, chief geologist of the Texas-New Mexico division. After viewing present activity in the Permian Basin, Griffiths goes to Houston. A visit to the East Texas field is planned prior to his return east.

PAUL R. MARTIN, chief scout for The Pure Oil Company in the Fort Worth division, accompanied by Mrs. Martin and their daughter, visited relatives and friends in Coffeyville, Kansas, the past week, and will spend the balance of their vacation in the Ozark Mountains.

FREDERICK G. CLAPP, consulting geologist of New York and director of Amiranian Oil Company and Inland Exploration Company, continues active in Iran and Afghanistan although both companies earlier in the year announced withdrawal from those countries. Dr. Clapp is operating out of Kabul and Teheran.

C. A. RUSSELL LEAVES PAN AMERICAN PRODUCTION COMPANY TO ENGAGE IN BUSINESS FOR HIMSELF

ENTERED THE OIL BUSINESS IN OLD VINTON FIELD IN 1915

C. A. RUSSELL, who has been general superintendent of Pan American Production Company, Houston, since April 1, 1935, has left the company to engage in business for himself.

Russell, born in 1895 near Burlington, Kansas, first worked in the oil fields in 1915 at Ged, Louisiana (the old Vinton field), then was with The Texas Company refinery at Port Arthur, Texas. After serving in the World War, he reentered the employ of The Texas Company at West Columbia and Blue Ridge, where he worked until 1921. At this time he spent four years getting a Degree of Bachelor of Sciences from the University of Arizona. He returned to the oil fields in June, 1925, in the employ of Pueblo Oil Company, a subsidiary of American Republics Corporation, at Artesia, New Mexico. Russell was with various companies of the American Republics Corporation until 1935, having been vice president of Pueblo Oil Company, Republics

Blank-Stoller

C. A. RUSSELL

Production Company, Federal Petroleum Company and Papoose Oil Company. He was in general charge of all drilling, land leasing and geological departments of Republic Production Company and other firms. He resigned from this position to join Pan American Production in April, 1935.

W. N. "BILL" CONES, scout for Humble Oil & Refining Company at Midland, Texas, is vacationing in Houston and surrounding areas for two weeks.

GEORGE R. ELLIOTT, since 1936 petroleum engineer in the production department of the Shreveport division of Phillips Petroleum Company, recently was transferred to company headquarters at Bartlesville. Formerly employed by the Alberta government, Elliott prepared, within three weeks of the completion of the discovery well of Turner Valley's west flank production an accurate analysis of the significance of that strike. It was published in the July 7, 1936, issue of this magazine.

S. N. HAWKS and D. A. Cripps, two members of the legal staff of Cities Service Oil Company, Bartlesville, retired voluntarily September 1. Hawks had been with the concern 18 years, and Cripps' employment extended over a 16-year period.

SIR PETER NORTON-GRIFFITHS, official of the Shell group of London, was in Houston last week to inspect properties of the Shell Petroleum Corporation, of which he is a director.

O. L. REINECKE, Claresholm, vice president, heads directors of Anaconda Oil Company, Limited, elected when company shareholders held their annual meeting last week in Calgary, Alberta. Other directors of the Canadian producing company named are W. B. Fraser, W. S. Henderson, A. J. Scott, F. R. Webster and J. R. Hammill, all of Calgary, and Dr. Robert MacKenzie, Vancouver. A. C. Johnson, president, and J. T. Atkinson, second vice president, both of Calgary, expresed a desire not to be nominated for the coming year.

GEORGE W. LaPIERE, consulting geologist, is moving his headquarters from Shreveport, Louisiana, to St. Louis. He had been active in the Illinois Basin area last year, making his headquarters in Flora.

W. R. HARDING, Olney, has been named registered agent for the Warren & Robinson Drilling Company, an Oklahoma corporation admitted into Illinois last week.

ROBERT L. HAZLETT, publisher of the Inland Oil Index, discussed the importance of Wyoming's oil industry before members of the Casper Rotary Club last week.

W. C. SCHOENFIELD, Hutchinson, Kansas, is president, and J. B. Sowder, Cleveland, Ohio, is secretary of Schoenfield-Hunter-Kitch Drilling Company which last week was admitted to do business in Illinois. The firm will make its headquarters in Centralia.

BENJAMIN C. CRAFT

Professor of petroleum engineering, Louisiana State University, who has managed to obtain sufficient papers for three days of technical sessions at the coming meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers in San Antonio October 5 through October 7.

ALEX CHITWOOD, head of the land department in the San Antonio district for Magnolia Petroleum Company, is taking a late vacation.

W. A. WAGNER, San Antonio independent oil operator, is leaving for an extended vacation to begin with a trip by boat from Galveston to New York.

G. H. CLARK, with the San Antonio office of The Texas Company, has been transferred to Houston. He is being replaced by J. M. Patterson, formerly of Corsicana.

ROBERT ANCIRA, office manager for Allen and Morris, drilling contractors of San Antonio, is back in the office after a trip through Old Mexico.

S. J. HUNGERFORD, Montreal, chairman of Canadian National Railways, while on tour through the company's properties in Western Canada, visited the Turner Valley oil field last week. His visit was considered significant in view of efforts being made by Alberta producing companies to obtain reductions in freight rates for crude shipped to eastern refining centers. Accompanying him were Charles H. Read, director of Canadian National Railways, Amherst, Nova Scotia; R. J. Moffatt, director, Bradwell, Saskatchewan; B. L. Daly, director, Montreal; M. A. Metcalf, asistant to the president, Montreal; A. E. Warren, Winnipeg, vice president of the western district; H. A. Dixon, Winnipeg, chief engineer for the western district, and H. Bruce Boreham, publicity representative, Winnipeg.

E. R. OSBURN, district superintendent of The Texas-New Mexico Pipe Line Company, has transferred his staff and headquarters from Junction to Midland, where the company has erected its own office building.

FORD BRADISH, Fort Worth consulting geologist, who is also associated with the Joe C. Maxwell interests, spent the past week visiting fields in West Texas and New Mexico.

DIED:

THOMAS H. PRATT, 78, general manager of the Pratt-Hewit Oil Corporation of Texas, Houston, died at his apartment in Houston, September 3. At the age of 60 Pratt came to Texas, and, in association with several other men discovered the Refugio oil and gas field. He is survived by his widow, one son and two daughters.

M. E. LAKE, 35, of Houston and San Antonio, Texas, vice president of Coast Line Oil Corporation and Lincoln Petroleum Company, plunged to his death from a Mattoon, Illinois, hotel window on September 8. His wife of three months jumped from the same window a few minutes previously, and was in a critical condition with a broken back.

EARL C. CRAIN, 49, head of Northern Oil Company, Pennsylvania producing firm, and vice president of Bovaird & Seyfang, oil well supply manufacturers, died September 1 in Bradford, Pennsylvania, of a heart ailment after an illness of a year.

H. M. KIGHTLINGER, 37, catheadman for the John Pugh Drilling Company on the Calhoun lease in the Birk City field, Henderson County, Kentucky, was fatally injured September 3 when he caught his hand in the cathead. A native of Gladewater, Texas, he is survived by his parents, a sister and two brothers, one of which, Russell Kightlinger, is also employed in the Birk City field.

WALTER R. SOSAMON, 58, independent oil operator who made his headquarters in Olney, Illinois, for the past 18 months, died September 3 after a short illness. He had formerly lived at Ada, Oklahoma. Burial was in Mena, Arkansas.

CHARLES W. BAKER, 57, active in the oil industry in Ohio prior to 20 years ago when he went to Tulsa where he later was associated with Selby Oil Company, McMahon Oil Company, Southwestern Petroleum Corporation and the T. B. Slick interests, was found dead September 1 in a Tulsa hotel.

THOMAS N. BROWN, 21, field employe of Gulf Oil Corporation, and D. M. Sanders, 26, gauger for Gulf Refining Company, pipe line division, were killed September 7 in an auto accident near Odessa, Texas. Brown, son of Tom F. Brown, safety engineer for Gulf Oil Corporation in Texas and New Mexico, was a senior of the Texas A. & M. College, and was due to resume his studies next week.

THE WEEK'S NEWS SUMMARIZED

Courts

The first court challenge in many months of East Texas proration methods was filed in district court last week. The suit was of more than usual importance because it declared the present procedure of allocating output solely on well potentials was creating inequitable recoveries, and that well density, acreage, and oil in place should be considered. Rowan and Nichols filed the suit on the specific charge that a neighboring lease is being permitted to produce as much oil from one well located on one-tenth of an acre as it is being permitted to produce from any of its five wells located on a 25-acre lease. A number of important developments may come from the suit, should it be won by Rowan and Nichols. It is possible that East Texas proration might collapse for a time, that engineering principles would be legally required in all proration orders, that the expected ultimate and daily recoveries of numerous tracts in East Texas would be rejuggled completely.

Another suit filed in Texas last week of importance was one that will test the common purchaser law and the commission's order requiring pipe line companies to obtain permission to disconnect from wells. W. M. Agey is suing American Liberty Pipe Line Company because the latter allegedly disconnected from one of his wells for two months. The petition alleges the pipe line company failed to fulfill its obligation as a common purchaser of oil in the East Texas field, by disconnecting from this well and continuing to take oil from nearby properties.

Confiscation of 219,250 barrels of East Texas oil was ordered in district court last week, while 90,250 barrels was declared legal production. The suit was unusual in that a prospective bidder for the oil unsuccessfully attempted to enter the case so as to assure itself a clear title.

It developed last week that retrial of the three major oil companies and 15 executives at Madison on charges of violating the anti-trust laws might be postponed. Judge Stone's father is sick, and the court calendar is crowded.

At Capitols

Fears that the uncertainty engendered among the major oil companies by the Madison cases may lead to a breakdown of buying plans which will render impotent the whole conservation movement and lay the industry open to new demands for federal control are felt by experienced observers recently touring the oil fields. The situation was summed up last week by Russell B. Brown, general counsel of the Independent Petroleum Association of America, as one which demands the greatest consideration from the buying companies, but it is admitted that the Madison proceedings have eliminated any chance of the majors getting together on any sort of a program which will protect the independent producers.

Pennsylvania's oil investigating commission, recreated last month by a special session legislature measure after being ruled illegally created, moved a step closer to activity as the House approved an appropriation for its work.

Governor Henry Horner of Illinois last week gave assurance that as long as he was governor of the state he would advocate the enactment of oil conservation measures. A special session of the legislature in June failed to pass a number of oil conservation measures, and Republicans holding their state platform convention last week favored no proration until consumption of crude within the state was equalled by production.

Markets

Following the recent revisions of crude and refined oil prices, which were principally downward, the markets have settled down and appear steady. The gasoline market did not yield any more ground, and crude was unchanged during the week.

Giving assurance that the crude price structure would continue to hold, was the unusually strict production allowables effective in September. It is indicated that consumption must be met by the withdrawal of considerable oil from storage. This condition should lend strength to gasoline storage also. Latest weekly statistics reflect moderation of refinery activity, and showed progress in reducing gasoline inventories, although those stocks still are larger than desired.

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Oil in the Courts

Important suit charges East Texas proration is creating inequities in recoveries by failure to consider acreage, well density and oil in place

East Texas proration method is attacked

Because it does not take into consideration a number of engineering principles (principally well density and oil in place), present proration regulation in the East Texas field are creating inequitable recoveries was the charge contained in a suit filed against the Texas Railroad Commission in Federal District Court at Austin last week.

The charges contained in the petition alone were sufficient to make the suit of great importance, but the additional economic factors that would be influenced made it even more noteworthy. It is the first challenge of proration regulations in the world's largest producing field in many months, it involves the contested Rule 37 (Texas' well spacing order), and is one of the first suits to ask that engineering principles be applied to production regulations. The suit immediately caused speculation as to what would happen to East Texas proration should the plaintiffs win. Without doubt it would be the forerunner of numerous other suits, might for a time bring about the collapse of control in East Texas, has possibilities of legally requiring the inclusion of engineering principles in all proration orders, and would completely rejuggle expected recoveries of many East Texas leases.

The petition alleges that the East Texas order does not allocate production fairly because it is based solely upon well potentials, and asks that well density, acreage, and such sand conditions as porosity, thickness and permeability be considered.

The case grew out of a Rule 37 spacing case, wherein an operator obtained a well on one-tenth of an acre offsetting Rowan and Nichols' 25-acre R. M. Wood lease, on which there are five wells.

The specific charge is that because of the neighboring leaseholder being granted an exception to the Rule 37 spacing order, the petitioner will not recover its just share of the oil underlying one of its leases under the present plan of allowing each well a daily output of 2.32 percent of its hourly potential regardless of other factors.

Rowan and Nichols of Fort Worth are plaintiffs in the suit, which was filed by attorneys Dan Moody, Rice Tilley and Phillip Tocker.

Rowan and Nichols have attempted previously to obtain an adjustment of the proration order through hearings before the Railroad Commission, but their appeals have been denied. It was for this reason that the suit was filed in court.

The company applied to the commission for relief and asked that they be given either enough wells to enable them to produce about the same number of barrels per acre per day as was being produced from the small tract with the one well, or else that the allowable for their lease be increased to effect the same result. Both of these requests were denied, the commission granting only one well (making a total of five) to offset the producer on the small tract.

The petition filed at Austin alleges that the "present plan of proration does not take into consideration density of drilling on leases with the result that an operaor having one well on one acre may recover daily and ultimately 10 times as many barrels of oil per acre as the operator of an adjoining lease which is drilled to a density of only one well to 10 acres, although the amount of recoverable oil per acre under each lease is the same.

"For example," the petition continues, "the commission granted a drilling permit on a strip immediately to the south of complainant's lease, comprising approximately one-tenth of an acre, and the lease owner is being permitted to produce 22.3 barrels per day from said well, which is as much as complainant is permitted to produce from any of five wells.

"There are contained in the East Texas field many hundreds of tracts of less than five acres on which the commission has authorized the drilling of an average of one well to one acre. From many of these tracts production has been far in excess of the amount of oil which underlay same and by reason of the plan of proration, said tracts, and particularly those to the east of complainants lease, have as much oil under same as originally was there."

Phillip Tocker, attorney who filed the petition, said that a three-judge court had been requested and that neither a temporary injunction nor a trial of the case could be had until all three judges were on the bench. Since two of the judges in this court are on vacation, it is unlikely that any hearing will be held on the case for some time.

Rowan and Nichols have long urged an acreage factor for the East Texas field, as have many of the major companies, but the commission has consistently followed the method now in effect of basing the allowable on potential and per well, an order which has been sustained in the Federal courts.

Suit filed under the common purchaser law

A test of the common purchaser law and the Texas Railroad Commission's order requiring pipe line companies to obtain permission to disconnect from wells is likely to result from a suit filed in 53rd District Court at Austin last week.

W. M. Agey sued American Liberty Pipe Line Company, alleging that one well was disconnected and left off the line for two months. The plaintiff asked for $206,000 in damages.

At the statewide proration hearing held in Austin on August 19, representatives of the Agey Company asked the commission for relief. Commission officials explained that they had investigated the case and had been told by American Liberty officials that the well was not making pipe line oil, and that the oil had not been properly treated before being turned over to the transporting company.

The petition filed by attorneys Black, Graves and Stayton of Austin alleges that the pipe line company failed to fulfill its obligation as a common purchaser of oil in the East Texas field. It is alleged that this was the only well disconnected in the area and that the purchaser continued taking oil from other properties in the immediate vicinity.

Madison retrials may be postponed

Possibility of postponement of retrial of three major oil companies and 15 oil company officials from the scheduled date of September 26 was seen at Madison, Wisconsin, last week. Federal Judge Patrick T. Stone, who heard the first trust trial last winter, granted the retrial motions and will preside over the second trial, postponed the Superior term of court which was scheduled to open last Wednesday to September 12 because of the serious illness of his father.

More than 40 criminal cases, in addition to several civil cases, are scheduled for the Superior term, and court observers expressed doubt that the calendar could be cleared within two weeks to permit start of the trust trial.

As yet, no jury panel has been drawn for retrial of the oil case. In the first trial, Judge Stone said, when ruling on motions of defense counsel late in July, there was "no substantial evidence in the record fairly tending to sustain the verdict of the jury" with respect to the companies and individuals granted new trials. The charges, on which a jury found 16 companies and 30 individuals guilty, alleged conspiracy to violate the anti-trust laws in the operation of buying programs in the East Texas and Mid-Continent fields by major companies following invalidation of the NRA. The court waived the jury verdict with respect to one company and ten individuals, and sustained the verdict and fined 12 companies and 5 individuals.

Companies granted new trials, scheduled to open in two weeks, are: Standard Oil Company of Indiana, Cities Service Company and Barnsdall Refining Company.

Individuals are: Alexander Fraser, St. Louis, president, Shell Petroleum Corporation; E. B. Reeser, Tulsa, president, Barnsdall Refining Company; E. A. O'Shaughnessy, Minneapolis, president of three Globe Oil & Refining Companies; Edward L. Shea, New York, president, Tide Water Associ-

ated Oil Company; A. G. McGuire, Milwaukee, chairman of the board, Wadhams Oil Company; H. E. Brandli, New York, vice president and general manager, Cities Service Export Company; Edward J. Bullock, Chicago, vice president in charge of purchasing for Standard Oil Company of Indiana; J. W. Carnes, New York, vice president, Sinclair Refining Company; Harry D. Frueuaff, Tulsa, vice president, Cities Service Export Oil Company; Harry J. Kennedy, Ponca City, vice president in charge of marketing, Continental Oil Company; Noel Robinson, New York, vice president, Tide Water Associated Oil Company; C. B. Watson, Chicago, vice president, The Pure Oil Company; A. M. Hughes, Bartlesville, sales manager, Phillips Petroleum Company; J. W. Warner, Tulsa, Tide Water Associated Oil Company, and O. J. Tuttle, Tulsa, tank car sales manager, Empire Oil & Refining Company.

Pending before Judge Stone is a motion of government counsel to set aside the court's order of July 19 in respect to the one company and 10 individuals against whom charges were dismissed. The contention that the court exceeded his power in this action has been argued before the court and a week ago was publicly criticized by Thurman Arnold, assistant attorney general, in a memorandum to congress in which he suggested four changes in anti-trust laws. In his statement, Arnold asked:

"Should there be an appeal, in anti-trust cases, from orders granting new trials after defendants have been found guilty by a jury? Should the trial judge, after the jury has found the defendant guilty of violation of the anti-trust act, have the right to free him, since such action is not appealable?"

Court orders confiscation of 219,250 barrels East Texas oil

Confiscation of 219,250 barrels of East Texas oil in the possession of General American Oil Company has been ordered by Judge Roy Archer in 126th District Court.

The state sued for confiscation of 309,500 barrels, but the court found that 90,250 barrels of the oil had been legally produced, and in the same judgment the Texas Railroad Commission was restrained from interfering with the movement of this amount. The commission had refused to approve tenders on the oil.

The judgment grew out of a most unusual confiscation case. Premier Oil Refining Company of Longview sought to intervene in the case. The company alleged that it was a prospective bidder for the confiscated oil, and sought to enter the case in order to assure itself that the title would be compleely clear.

Attorneys for the state and for General American, the defendant company, objected to the intervention and the Premier company was refused the right to intervene. Its attorneys, Blalock, Lohman and Blalock, filed notice of appeal to the Third Court of Civil Appeals.

J. R. Parten, Premier stockholder, predicted that there would be only one bidder for the oil. He expressed the opinion that the General American Company alone would bid because other prospective purchasers would be unwilling to accept the title.

Oil at the Capitols

Nullification of proration efforts or federal control is possibility unless purchasers take equitably from each producer—Russell Brown

Inequities may destroy control program is charge

Failure of the companies which purchase crude oil from producers to realize that they have a duty and obligation to take oil equitably from all producers will result either in the nullification of proration efforts or the imposition of Federal control, it was warned this week by Russell B. Brown, general counsel of the Independent Petroleum Association of America.

Brown's caution was issued following his return from a tour of the various oil fields, where, he said, he found many inequities existing which may result in the entire destruction of any effort to get a sound program for the industry.

"Subject to reasonable and necessary practical limitations," he said, in summarizing the views expressed by oil men with whom he had conferred, "proration rests upon the fundamental proposition that each producer each day, wherever situate, will receive his ratable share of the day's market, and, with broad adjusting factors taken into account, will also receive the prevailing market price. This is of the utmost importance to the independent producer who is wholly dependent upon others for his markets and the transportation of his oil."

However, Brown pointed out, to effectuate this, it is necessary to have adequate control of imports, storage withdrawals, fair and equitable allocations among the states, fair and equitable allocations among pools within the states, and ratable takings within pools within the states.

At the same time, neither the State Compact nor state commissions possess any power at all so far as the first four factors are concerned, and in the opinion of some, if one purchaser in a common pool reduces his purchases, then state regulatory bodies cannot affirmatively redistribute the remaining allowables on a ratable taking basis.

"If this opinion is correct," he commented, "it would follow that such state commissions could only restrict the allowable of all producers to the level of the lowest percentage being taken by any purchaser from any producer or producers in such a pool. On such a theory this would constitute an unsatisfactory and negative form of control, and its exercise would only drive purchasing power away from the pool, and in many cases out of the state where any such pool might be located.

"Therefore, it becomes apparent that proration is something of a paradox—we control production without any public authority which is empowered to see to it that equity and fairness and ratable takings are assured to all concerned, and particularly to those producers who are entirely unable to protect themselves. No conceivable form of state compact can have, nor do state commissions have control over all of the factors involved. Only a Federal agency could be vested with such power."

Accordingly, Brown held, "the purchasing companies must realize that they are required in substance to discharge a public duty and obligation, the alternative being that either proration will fail or federal control must be had, or that both will result.

"The entire industry," he declared, "is jittery because of the Madison indictments. No one seems to know what the law is. If it be true that purchasers cannot even discuss among themselves the matter of fair and ratable takings as among the various states; as among pools within the states, and within the limits of pools within the states, there then results an unfortunate situation and one that is calculated to do immeasurable public harm. But if that be the law, would it not then be legal for purchasers acting individually and not in concert to look at their own situations and the general situation and formulate their own independent policies to the end that they at least will have made their own individual contributions? The composite result of such individual action should certainly very largely bring about that degree of fair, equitable and ratable purchases which must characterize proration if the system or principle is to long endure and if the rights of the producer are to be protected."

Horner still favors oil conservation for Illinois

Notice that he would continue his campaign for "fair legislation" for the Illinois oil fields was given last week by Governor Henry Horner. The chief executive's stand was revealed in a letter to Thomas F. Myers, Jr., of Chicago, in answer to a query, and was made public by the state division of department reports at Springfield. Myers had asked the governor's reasons for recommending oil legislation at the June special session of the legislature, which failed to pass, and whether he favored restrictive legislation against small producers.

The special session legislation was designed to conserve the oil resources of the state and were included in the special session call at the request of cities, oil producers, the Illinois Budgetry Commission and others, the governor said.

"Sometime, Illinois will have conservation and regulatory laws pertaining to the oil fields, just as Illinois now has laws of like nature pertaining to the

coal and other mineral fields," the governor said. "They will not only be fostered by the state administration, but they will be wholeheartedly fostered, even demanded, by the oil industry and oil land owners.

"Already there are complaints of flagrant discrimination by some pipe line companies against small producers in favor of large producers. Already there are complaints of waste, and the quick draining of wells because other wells are being drilled too close to them. Already there are complaints of market price slashes forced upon small producers under threat by buyers of refusal to accept their products.

"But Illinois is now powerless to act for the protection of these producers, for the protection of the land owners and for the protection of workers in these cases of discrimination, because we have no legislation empowering our state to act," the governor continued. "Neither do we have legislation empowering the state to prevent willful waste of this valuable natural resource.

"You may be assured, however, that as long as I am governor of Illinois, every effort will be put forth to obtain fair legislation on the subject. Revenue for the state is a matter of secondary importance—since it is so small a matter in this case—but conservation of our resources and protection of the citizens of our state against reckless exploitation is all important."

The chief executive defended one of the special session measures which proposed a 2½ percent oil producers occupation tax, $50,000 of the revenue of which would be needed to administer the act, and the remaining $450,000 to have been placed in the emergency fund for relief purposes, on the ground that the benefits from the natural resource should be shared by the entire state.

Meanwhile, Republicans holding their state platform convention at Peoria declared that the state should not have proration until production of crude within the state equaled the demand for petroleum products established by the state.

Pennsylvania investigation a step closer to starting

Pennsylvania's oil investigating commission, re-created last month by a special session legislative measure, moved a step closer to continuation of its activities when the House last week approved an appropriation of $20,000 for its work. The bill, which passed by a vote of 110 to 39 and was sent to the Senate, also validates the actions and expenses of the old commission which was stopped by the State Supreme Court because it was established by a joint resolution rather than by a bill.

Members of the original commission have been re-appointed. The inquiry is to determine "all proper information and knowledge of facts with respect to the whole operation of the oil industry," and the commission is designated an agency of the legislature "for the purpose of making a careful, impartial and thorough investigation into the operation of the oil industry within the commonwealth and to make a report of its findings and recommendations."

Allowable Picture

Pipe line proration is considered in fixing New Mexico allowable for September . . . Committee recommends change in Kansas taking of potentials

New Mexico allowables for September lower

Sharp reduction in the allowable of prorated wells in the Artesia district was placed into effect September 1 by the New Mexico Oil Conservation Commission as result of the 3 leading buyers having reduced their nominations from 6672 barrels to 4525 barrels daily. The top allowable for the state was fixed at 106,000 barrels daily, involving a cut of 1000 barrels, with Lea County's quota advancing 847 barrels to 100,130 barrels daily. The increase enabled the top well allowable for Lea County to remain pegged at 57 barrels daily.

The shrinkage in market demand for the Artesia district, embracing all of Eddy County and the Maljamar field, located on west edge of Lea County, lowered the top allowable of its 103 prorated wells from 57 to 33 barrels daily. Sinclair Prairie Oil Marketing Company lowered its nominations from 3800 to 1900 barrels effective August 23 and nominated 2000 barrels for the September period. New Mexico Pipe Line Company cut its runs 220 to 1000 barrels daily on September 1, and the Murchison & Closuit Pipe Line Company nominated 1333 barrels daily, or a reduction of 137 barrels.

Kansas considers proposed changes in proration rules

Changes in proration rules for Kansas were considered by the state corporation commission at Wichita September 8, as recommended by a committee of nine members. The committee, named two months ago, was composed of five representatives of independent producers and four from major concerns.

A change for the method of taking actual physical potential tests was included in that the test would extend over a consecutive eight-hour period whose output would be multiplied by three to determine potential. The potential test would be by whatever method the well would be produced. For a pumping test, equipment would be restricted to equipment of not to exceed 3-inch working barrel, 3-inch tubing, stroke not to exceed 54 inches, and the number of strokes not to exceed 35 per minute.

All new wells would take potential tests before being prorated. New potential tests would be taken beginning March 1, 1939, and thereafter each 12 months. New potential tests would be required when a well changed its method of production, changed from one common source of supply to another, or when the commission, for good cause shown, orders another test taken.

After establishing a potential, each well would be put on the Composite Withdrawal Decline Curve at a point where the potential equals the potential shown on the curve. The potential would thereafter be adjusted each month in keeping with the amount of oil withdrawn as dictated by the curve.

Adoption of any other method of taking potential tests may be had by application to the commission, which will hold a hearing, when a majority of producers in a field file an outline of the plan, which must be submitted first to all other producers in the field.

A change in the method of determining allowable for a field was offered in a rule which would give each well a 15-barrel allowable prior to allocation of the remainder of output in keeping with market demand as:

"Upon the determination of the reasonable market demand of a pool, there shall first be allowed to each producing well in the pool a minimum of 15 barrels and the balance of such reasonable market demand shall be equitably prorated among the wells in the pool having a potential in excess of 15 barrels."

Labor Situation

Six men fined for labor activities

Six men charged in three cases with aggravated assault and battery in connection with C.I.O. activities in Harris County pleaded guilty last week in Harris County Court and were assessed fines and court costs totalling $204.

Charges of unlawful assembly and riot and three cases of aggravated assault and battery indictments returned by the grand jury were dismissed on motion of the state for insufficient evidence. The indictments grew out of an investigation during July by the grand jury of labor conditions for rig builders in the county.

NLRB charges Texas Company ship division

A complaint against the marine division of the Texas Company, charging interference with union activities and discrimination discharge of 10 men, was issued last week by the National Labor Relations Board, Fort Worth, Texas, office.

The charge was filed by the National Maritime Union, Port Arthur, Texas, branch. The hearing was scheduled for September 12 in Port Arthur.

Taxicabs in the District of Columbia must carry 550 paying fares to pay the federal and district gasoline tax bill.

Market Situation

Prices are steady and outlook is good as strict September allowables indicate the necessity for withdrawal from both gasoline and crude storage

Markets are steady and prospects good

The markets have settled down, and prices now appear steady, following the recent revisions of prices of both crude and refined oils, which were principally reductions.

Crude price cuts have been confined to the general reductions in East Texas and the Eastern States and the cut by an independent purchaser in southern Oklahoma.

The gasoline market has not yielded any more ground after sagging ⅛ to ¼ cent a gallon before Labor Day in sympathy with the crude cuts.

Moreover, the outlook is good for both the crude and refined oil divisions of the market.

Virtually assuring maintenance of the crude price structure approximately in its present form are the unusually strict allowables effective in September. National output of crude is scheduled under those allowables to be materially under actual market requirements, and demand should be firm for all production permitted. In fact, it is indicated that requirements will be met only by substantial dipping into above ground stocks of gasoline or crude oil or both.

Similarly, the low crude production allowables for September undoubtedly will lend strength to the gasoline market by reason of causing withdrawals from the gasoline storage.

Low operations permit reduction of stocks

The industry is continuing to operate on a satisfactory basis, and it is making some further progress in lowering inventories, the latest weekly statistics show.

Crude oil production now is very strictly curtailed, being materially below current market demand and therefore making possible substantial withdrawals from storage of both crude and refined oils.

The average daily production of 3,349,100 barrels daily in the week ended September 3 as reported by the American Petroleum Institute was about 40,000 barrels a day less than in the previous week but did not reflect the Saturday shutdowns of Texas fields, now prevailing in addition to the Sunday shutdowns. Another sharp drop is due to be reported by the A.P.I., therefore, for the week ended September 10.

Refinery runs of crude oil also were down further in the wee kof September 3, having averaged 3,195,000 barrels daily, or 60,000 barrels lower than in the previous week. At that level, the plant operations were 7.3 percent lower than in the comparable week last year.

With the refinery runs held down, the industry was able to take more than a million barrels of gasoline out of storage in the week ended September 3. Dropping to 70,514,000 barrels, the gasoline stocks then were only 5.2 percent larger than one year previously, when they totaled 67,048,000 barrels. In September of last year, however, the industry was making too much gasoline, and the stocks began the autumn increase prematurely.

Gasoline demand now is only about the same as last year, moreover. Consequently, it is obvious that some further reduction of gasoline inventories would be highly desirable. Fortunately, such additional withdrawals are in prospect.

Fuel oil inventories remain far above last year's levels and are still increasing. They rose about 700,000 barrels in the week ended September 3, and stood then at 147,646,000 barrels, or 30.2 percent higher than on the comparable date last year.

Statistics Encouraging

Supporting an optimistic view of the markets in the immediate future were the latest weekly statistics of the industry. They reflected the current moderate crude oil production and refinery activity, and showed that more progress is being made in reducing the inventories of gasoline, although those stocks still are somewhat larger than desirable.

Fuel oil stocks are unusually large, being about 30 percent greater than at this time last year, although demand for those oils has been lagging below last year's levels. However, no great concern is felt over the fuel oil inventory situation, as the heavy consuming season for the lighter oils is just ahead, and as the present large supplies will tend to hold down refinery runs and future production of gasoline as well as fuel oils. The large fuel stocks thus have favorable implications for the gasoline market.

Prices settle down following revisions

Following the reductions of crude oil prices in several districts and lowering of gasoline tank car prices in the previous week, the prices in the industry last week were generally unchanged, with exception of some further minor readjustments of quotations for refined products.

Following the 12-cent reduction of Pennsylvania grade crude oil postings several days before, the price of Corning grade, Ohio, crude was reduced 10 cents a barrel, effective September 3, by Joseph Seep Purchasing Agency of the South Penn Oil Company, bringing the present quotation to $1.07 a barrel. The last change had been made June 16, when the price was reduced 10 cents a barrel. The present quotation is the lowest since June 26, 1933.

The increases posted recently on high gravity crudes in South Texas by Humble Oil & Refining Company have been met by Republic Oil Refining Company in fields where it purchases oil. These fields include Heyser and Benavides,

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
August 29, 1937	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 25	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 29	3,357,650	3,170,000	304,286,000	84,844,000	118,793,000
February 26	3,322,800	3,170,000	305,167,000	90,719,000	120,958,000
March 19	3,322,550	3,080,000	306,380,000	*93,192,000	122,067,000
March 26	3,405,600	3,080,000	307,557,000	92,858,000	122,979,000
April 30	3,396,150	3,215,000	307,147,000	91,339,000	128,270,000
May 28	3,098,650	3,150,000	301,583,000	87,946,000	134,315,000
June 25	3,083,900	3,025,000	293,463,000	82,412,000	137,801,000
July 30	3,316,400	3,240,000	288,514,000	76,864,000	144,294,000
August 6	3,317,850	3,215,000	287,406,000	75,380,000	144,699,000
August 13	3,359,900	3,295,000	286,251,000	74,387,000	146,261,000
August 20	3,392,700	3,265,000	285,137,000	72,709,000	147,180,000
August 27	3,388,500	3,255,000	285,029,000	71,754,000	146,926,000
September 3, 1938	3,349,100	3,195,000	.....	70,514,000	147,646,000
September 4, 1937	3,692,550	3,445,000	†309,506,000	67,048,000	113,443,000
Change in past year	—9.3%	—7.3%	—7.9%	+5.2%	+30.2%

* All time peak. † Stocks, August 28, 1937.

where Humble's Mirando district prices apply, and Plymouth, Midway, East White Point, and Saxet, which have been given the same postings as Humble's prices for Refugio grade crude. Republic made its new prices retroactive to August 29, same effective date as Humble's new schedule. These new prices are from 2 to 20 cents a barrel higher than former postings on crude of 40 to 50 gravity, depending on the grade. Formerly, all crude above 40 gravity took the same price as the 40 gravity oil.

Natural Gasoline

Natural gasoline, grade 26-70, was priced generally in the Mid-Continent markets f.o.b. refineries at 3¼ cents a gallon, and sales were reported at the same price f.o.b. Breckenridge, Texas.

Gasoline at Refineries

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below 4½ to 5 cents a gallon; 63 to 66 octane, 4¾ to 5⅛ cents; 67 to 69 octane, 5 to 5½ cents; 70 to 72 octane, 5¼ to 5¾ cents.

Corresponding prices in the Chicago markets were 4 to 4¾ cents, 4⅜ to 4⅞ cents, 4⅝ to 5¼ cents and 4⅞ to 5⅜ cents.

In East Texas the most common gasoline, 60-62, 400 end point was priced generally from 4½ to 4⅝ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4 to 4¼ cents a gallon for the 41-43 water white grade, and from 4¼ to 4⅝ cents for the 42-44 water white grade; and corresponding prices in the Chicago market were 3½ to 4¼ cents and 3⅝ to 4⅜ cents.

Fuel Oil

Fuel oil prices were not materially changed in the past week. In the Chicago market range oil was priced from 3⅝ to 4⅛ cents a gallon. The No. 1 white oil was priced from 3⅝ to 3⅞ cents, and No. 1 straw from 3½ to 3¾ cents. No. 2 straw was 3½ to 3⅝ cents. No. 3 oil was 3¼ to 3⅜ cents. No. 5 oils were 60 to 70 cents a barrel. The No. 6 oil was quoted at 35 to 50 cents a barrel.

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields are shown on pages 56 and 57 of the September 5, 1938, issue. The complete price schedule appears once monthly.

Pennsylvania crude cut termed distinct shock

The reduction September 1 of 12 cents a barrel in the posted price of Pennsylvania grade crude oils was described last week as "a distinct shock to the better informed oil producers of this district" by Davis B. McCalmont, Franklin, president of the Central Pennsylvania Oil Producers Association.

"We were expecting a rise, not a cut, in the price of our crude oil and feel that the statistical position fully justified an upward revision in posted prices at this time," McCalmont said.

"Refinery stocks of lubricating oils, finished and unfinished, reached their peak on May 26 of this year. Since that date more than 253,000 barrels of these products have been withdrawn from refinery storage. During this same period refinery stocks of gasoline, naphthas, kerosene, burning oils, etc. have decreased 286,000 barrels. Adding these two sums we find that refinery stocks of finished and partly finished stocks have decreased by more than 539,000 barrels from May 29 to August 30 of 1938, a period of 91 days.

"In response to this decline in refinery stocks, the prices of bright stock and neutrals have advanced materially during the summer and are now quoted at considerably higher levels than prevailed on June 1. No important declines in any refined product have occurred during this period to neutralize the advantage of this price advance in bright stock and neutrals.

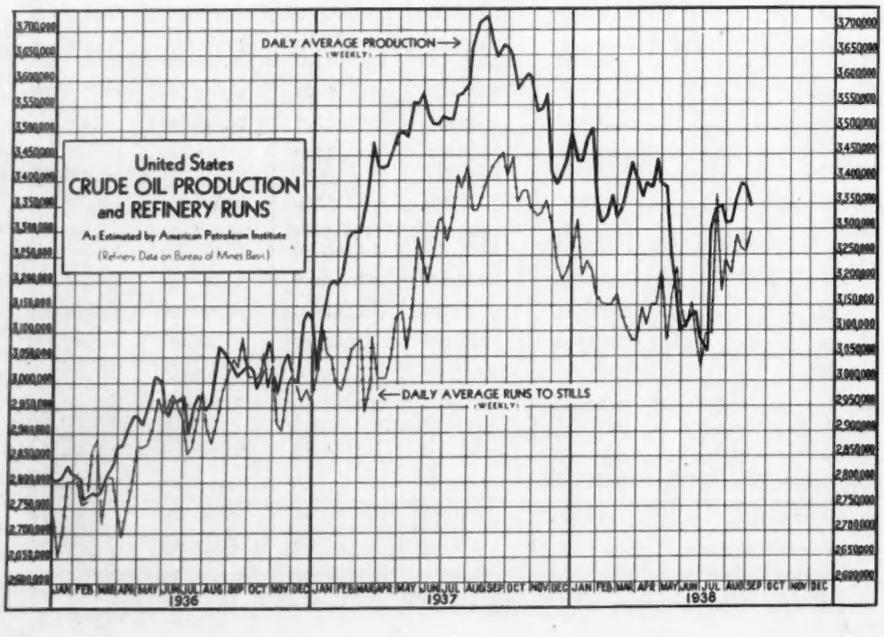
"The only offset to the above splendid statistical position has been some accumulation of Pennsylvania grade crude oil," McCalmont continued. "There was a total of 390,000 barrels of crude oil added to storage during the 91 days beginning May 28 and which is comparable to the period used in the refinery stocks above.

"Thus we have the following situation for the 91-day period: Decrease in stocks of finished and unfinished oils at refineries, 539,000 barrels. Increase in Pennsylvania grade crude oil stocks for the same period, 390,000 barrels. Net decrease, 149,000 barrels.

"Therefore, the total amount of Pennsylvania grade crude oil, plus finished and partly finished refinery stocks has not increased since May 28 of this year but on the contrary has decreased by 149,000 barrels, which is more than 1600 barrels per day for the entire period.

"When Pennsylvania grade crude oil prices started down from the high of $2.82 per barrel, the accumulation of refined products at refineries and the decline in the prices of bright stock and neutrals was assigned as the reason for several of our price reductions. Now that these refinery stocks have been reduced by more than a half a million barrels and prices of bright stocks and neutrals have materially advanced, the accumulation of Pennsylvania grade crude oil is made the pretext for this last drastic cut in crude prices. Yet this crude accumulation, 390,000 barrels, is less than 75 percent of the decrease in the stocks of refined and semi-refined products, which amounted to 539,000 barrels.

"If we use the 7-week period from July 2 to August 20 we find crude oil stocks have increased about 141,500 barrels, while for the comparable period of July 7 to August 25 refinery stocks of finished and unfinished oils has decreased 250,000 barrels (lube stocks 145,000 barrels and other products 105,000 barrels). Thus, the net decrease for this period of 49 days was 108,500 barrels, a net decrease of over 2200 barrels per day, a still more impressive showing."

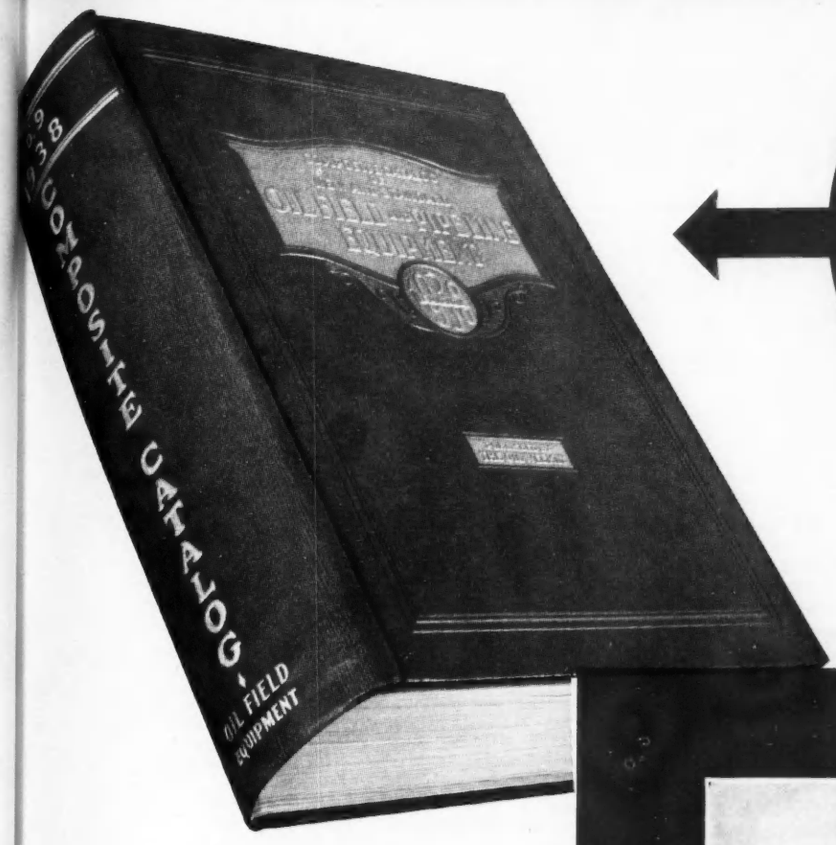


K-M-A purchasers liberalize line proration

Enforcement of the Texas Railroad Commission's 5-day production week in the K-M-A field has resulted in the two largest purchasers—The Texas Company and Magnolia Petroleum Company—raising their pipe line proration restrictions from 75 to 80 percent of the allowable. Sinclair Prairie Oil Marketing Company and Continental Oil Company have not announced if their runs will be increased on the same basis. Pipe line proration was applied to the field effective August 1 by all purchasers except Gulf Refining Company, which is handling controlled production. The base allowable per well at K-M-A is 32 barrels daily, but this quota is subject to Saturday and Sunday shutdowns and pipe line proration.

Pure buying 10,000 barrels daily at Schuler

Effective September 1 Pure Oil Company began purchase of 10,000 barrels daily of Schuler, Arkansas, crude oil, taking half that amount from Lion Oil Refining Company and half from Phillips Petroleum Company. The price is based on East Texas posted price.



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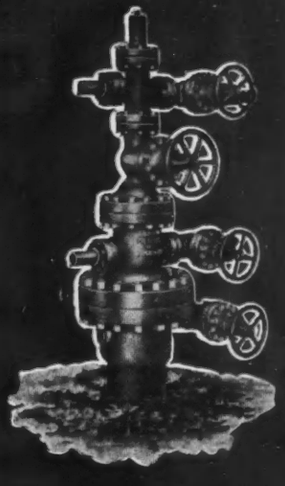

BROWN OIL TOOLS, INC.
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Pages 407-426, Your Composite Catalog

BROWN OIL TOOLS, INC.

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Crude Production

Increase of 45,450 barrels daily brings U. S. total to 3,244,225 barrels; well under U. S. figure

DESPITE the conservative allowables fixed by the various states for September, all principal producing states, with the exception of Kansas, showed a considerable increase in the first full week of this month, having averaged 3,244,225 barrels a day. However, production in various states ordinarily show a decrease in their output during the latter part of the month. The last week's level represented an increase of 45,450 barrels daily as compared with the previous week, and was 200,075 barrels lower than the Bureau of Mines estimated demand for domestic crude.

The slight jump in production during the past week occurred in Texas, California, Oklahoma and Louisiana, which greatly outweighed a small decline in Kansas.

Texas production took a jump of 5700 barrels daily, having averaged 1,243,450 barrels a day. That was 155,150 barrels less than the Bureau of Mines recommendation and 10,202 barrels more than the allowable prescribed by the state.

California output was up 15,900 barrels compared with the previous week's level, having averaged 667,600 barrels a day, which was 29,300 barrels more than the federal allocation and 52,600 barrels more than the state allowable.

Oklahoma averaged 447,500 barrels daily, 15,100 barrels more than in the previous week, 80,800 barrels less than the estimated demand and 19,500 barrels more than the state allowable.

Louisiana showed an increase of 2575 barrels having averaged 267,625 barrels a day, which was 12,325 barrels more than the federal allocation and 7365 barrels more than the state allowable.

Kansas last week averaged 154,300 barrels daily, which was 6900 less than in the previous week, 13,700 barrels less than the Bureau of Mines recommendation and 11,200 barrels less than the state allowable.

State ready when trust suit comes up

The state will be ready October 3 when its suit against 15 oil companies, a marketing association and the American Petroleum Institute is called for trial. The defendants are charged with creating a combination "for the purpose of fixing prices, lessening competition, and restraining trade."

Attorney General William McCraw announced that his assistants are now locating the witnesses to be called, and that all of those who are to be called by the state live in Texas. He has assigned seven assistants to the case, and will have the aid of special counsel.

The suit was filed in 1931 when James V. Allred was attorney general.

Berge to speak at Oil Marketers meeting

Wendell Berge, chief assistant to Thurman Arnold, assistant attorney general in charge of anti-trust enforcement, and Arnold's alternate on the monopoly investigating committee, will be a principal speaker at the annual convention of the National Oil Marketers Association at Chicago, October 24-25, it was announced this week by Paul E. Hadlick, secretary of the organization.

Berge will discuss the anti-trust laws, together with the prospect for their improvement as a result of the investigation now being made.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Sept.	State Allowable in Sept.	BARRELS DAILY FOR WEEK ENDED Sept. 10	Sept. 3
TEXAS—				
Texas Panhandle	.....	.....	73,900	73,600
North Texas	.....	.....	76,200	75,900
West Central Texas	.....	.....	29,150	28,850
West Texas	.....	.....	196,300	195,200
East Central Texas	.....	.....	90,100	89,200
East Texas Field	.....	.....	369,100	367,800
South Texas	.....	.....	215,300	214,500
Texas Gulf Coast	.....	.....	193,400	192,700
Total Texas	1,398,600	1,233,248†	1,243,450	1,237,750
CALIFORNIA—				
Long Beach	.....	.....	56,600	57,000
Santa Fe Springs	.....	.....	31,700	31,900
Huntington Beach	.....	.....	33,300	32,300
Dominguez	.....	.....	25,600	24,200
Ventura Avenue	.....	.....	34,900	36,400
Midway-Sunset	.....	.....	49,800	53,600
Kettleman Hills	.....	.....	64,800	63,400
Wilmington	.....	.....	93,000	90,500
Others	.....	.....	277,900	262,400
Total California	638,300	615,000*	667,600	651,700
OKLAHOMA—				
Oklahoma City	.....	.....	107,125	95,925
Seminole Area	.....	.....	90,450	93,650
Fitts	.....	.....	38,850	36,900
Others	.....	.....	211,075	205,925
Total Oklahoma	528,300	428,000	447,500	432,400
LOUISIANA—				
North Louisiana	.....	.....	80,325	78,350
South Louisiana	.....	.....	187,300	186,700
Total Louisiana	255,300	260,260	267,625	265,050

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Sept.	State Allowable in Sept.	BARRELS DAILY FOR WEEK ENDED Sept. 10	Sept. 3
KANSAS—				
Burrton-Haven	.....	.....	9,400	9,275
Russel County	.....	.....	24,050	24,075
Silica	.....	.....	6,950	10,900
Others	.....	.....	113,900	116,950
Total Kansas	168,000	165,500	154,300	161,200
NEW MEXICO	111,600	106,000	106,300	105,900
MICHIGAN	57,000	.....	51,700	51,300
ARKANSAS	53,700	.....	58,350	56,925
MOUNTAIN STATES—				
Wyoming	65,600	.....	54,600	61,600
Montana	14,000	.....	12,800	12,900
Colorado	4,600	.....	3,500	3,450
Total Mountain States	84,200	.....	70,900	77,950
EASTERN STATES—				
Pennsylvania	.....	.....	76,700	74,900
Southern Illinois (New Pools)	.....	.....	49,250	48,100
Illinois-Indiana (Old Pools)	.....	.....	14,150	13,450
Others, Eastern	.....	.....	23,100	22,150
Total Eastern States	149,300	.....	163,200	158,600
Total United States	3,444,300	.....	3,244,225	3,198,775

† Daily average, considering Saturday and Sunday Shut-downs.

* Recommendation of Central Committee of California Oil Producers.

Bureau Statistics

Reports for July show increase in demand offset sharp upturn in production sufficiently to cause reduction in stocks . . . Natural gasoline grows

Increased demand reflected in Bureau's July report

A sharp upturn in crude production in July and an increased demand which reduced stocks to a point where a new August low was foreseen, was reported by the Bureau of Mines September 9.

Daily average production for the month was placed by the bureau at 3,319,000 barrels, an increase of 177,000 barrels over the June average, but 79,100 barrels under the bureau's forecast for the month and 252,600 barrels under the July, 1937, daily average of 3,571,600 barrels.

"Most of the increase in production in July occurred in Texas, where production increased in every major district except Rodessa," the bureau commented. "This gain in Texas was due primarily to abandoning the Saturday shutdown. Production in California declined, which helped in halting the upward trend in stocks. Arkansas, with the Schuler field in the spotlight, made a notable gain, as did Illinois, where 116 oil wells were completed in July. Kansas, Louisiana, New Mexico and Oklahoma showed small gains in daily average production in July.

"The draft on crude-oil stocks was less than in June, due to the gain in production, nevertheless, nearly 4,000,000 barrels were withdrawn in July, and the total on hand July 31 (288,664,000 barrels) presaged a new low to be reached in August."

The yield of gasoline rose to 44.7 percent in July which was 0.4 percent higher than in June and 1.5 percent above July of last year. However, primarily because of the general poor weather of the month, the indicated domestic demand for motor fuel failed by a generous margin to approach expectations. The July figure was placed by the bureau at 47,474,000 barrels, or six percent under the same month last year, and for the first time since 1933 July demand was less than that for June. As a result of reduced demand and increased activity at cracking plants, gasoline stocks failed to decline as expected and on July 31 finished and unfinished stocks totaled 76,732,000 barrels, 3,799,000 barrels less than on June 30 but about 6,400,000 barrels more than on the same date in 1937.

The indicated domestic demand for gas oil and distillate fuel oil increased materially over June and surpassed that of last July, on the other hand, the bureau reported, the domestic demand for residual fuel oil was twenty percent lower than a year ago.

The price index for petroleum products in July, as figured by the Bureau of Labor Statistics, was 56.8 compared with 56.3 in June and 61.8 in July, 1937. The refinery data of the report was compiled from schedules of refineries having an aggregate daily crude capacity of 4,054,000 barrels, which operated at 79 percent of capacity in July, compared with 77 percent in June and 87 percent in July of last year.

Details of supply and demand for the month follow: Domestic production; crude, 102,898,000; daily average, 3,319,000; natural gasoline, 4,127,000; Benzol, 114,000; total production, 107,139,000; daily average, 3,456,000.

Imports: Crude in bond, 273,000; for domestic use, 2,292,000; refined products in bond, 1,172,000; for domestic use, 491,000; total new supply, all oils, 111,907,000; daily average, 3,610,000. Increase in stocks, all oils, 463,000.

Demand: Total, 111,444,000; daily average, 3,595,000; exports, crude, 7,250,000; refined products, 10,054,000; domestic demand, motor fuel, 47,474,000; kerosene, 3,752,000; gas oil and distillate fuels, 7,683,000; residual fuel oils, 20,548,000; lubricants, 1,843,000; wax, 75,000; coke, 445,000; asphalt, 2,800,000; road oil, 1,469,000; Still gas, 5,730,000; miscellaneous, 177,000; losses, 1,964,000; total domestic demand, 94,140,000; daily average, 3,037,000.

Stocks: Crude, refinable in United States, 288,664,000; heavy in California, 17,646,000; natural gasoline, 7,614,000; refined products, 270,046,000; total all oils, 583,970,000; days' supply, 162.

July crude runs to stills show increase

Crude runs to stills in July showed an increase of 92,000 barrels a day over the preceding month to reach a daily average of 3,221,000 barrels, but were 159,000 barrels less than the average for July, 1937, it was reported September 8 by the Bureau of Mines.

Receipts of crude oil at refineries for the month totaled 98,618,000 barrels, of which 96,116,000 was domestic and 2,565,000 barrels foreign, the daily average of 83,000 barrels for the latter being an increase of 10,000 barrels over June, it was stated. Total crude runs to stills were 99,856,000 barrels and fuel and losses were 179,000 barrels.

As a result of the heavier runs, stocks declined from 52,928,000 barrels July 1, to 51,574,000 barrels July 31, it was reported.

More natural gasoline made during July

Natural gasoline production in July jumped to 173,334,000 gallons from 168,042,000 gallons in June, but the daily average of 5,591,000 gallons was 10,000 gallons under that of the preceding month, the Bureau of Mines reported September 8.

The principal declines in production, the report showed, were registered in Kansas and in the Panhandle, Kettleman Hills and Oklahoma City fields, while the principal increases were in the Texas Gulf and East Texas. As a result of the gain in East Texas, it was said, that field passed the Panhandle as the premier producing district in the country.

Stocks continued to increase and reached a new high, it was stated. Stocks at refineries advancing from 154,056,000 to 159,642,000 gallons during the month and those at plants and terminals increasing from 137,886,000 to 160,146,000 gallons.

Atlantic Refining receives largest Gulf crude shipment

The largest consignment of crude oil ever received within a 24-hour period by the Point Breeze Refinery of The Atlantic Refining Company arrived September 2 and September 3 when four of the largest vessels of the Atlantic tanker fleet docked at Point Breeze loaded with 20,000,000 gallons of crude from Texas Gulf ports. The vessels were the S.S. J. W. Van Dyke, Robert H. Colley, W. D. Anderson and Albert Hill.

The huge consignment of crude is sufficient to yield approximately 478,000 gallons of lubricating oil, 956,000 gallons of kerosene, 7,648,000 gallons of gas and fuel oil, and 8,604,000 gallons of gasoline—an amount of gasoline sufficient to meet the average annual requirements of more than 13,000 motorists. The S.S. J. W. Van Dyke and the S.S. Robert H. Colley, both commissioned this year, are the world's two largest welded ships and the first American-built turbo-electric tankers.

Pipe Line News

Australia plans 140-mile line in New South Wales

Plans for construction of a 140-mile pipe line for movement of crude from shale deposits in Baerami, the Caperteé-Newnes area and other parts of New South Wales to Sydney, Australia, at a cost of $2,000,000 were announced recently. Actual construction of the line will await manufacture of pipe, to be undertaken immediately by several Australian companies.

At Sydney a refinery is to be constructed at a cost of about $3,000,000. Australian government officials estimate that within five years time production of gasoline from the island's shale deposits may equal one-fourth of Australia's requirements.

Texas pipe line overage oil hearing postponed

The Texas Railroad Commission has postponed until September 14 its hearing on "overage" oil accumulated by various pipe line companies operating in Texas. The hearing was originally scheduled for September 6. It will be held in Austin.

The 1937 petroleum tax bill was a levy of nearly 90% of the value of the crude oil produced by the industry.

OFFICIAL

NOTICE

AFTER SEPT. 1, 1938, A VERY SUBSTANTIAL PRICE RAISE WILL BE EFFECTIVE.

KINDLY OBTAIN NEW QUOTATIONS ON PROPOSED SOIL-ANALYSIS SURVEYS BEFORE SUBMITTING ORDERS.

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WEEK'S DRILLING HIGHLIGHTS

Illinois

Beecher City field of Fayette County got extended 5½ miles, giving the field a length of 18 miles and a maximum width of 4½ miles. In addition, a well 1½ miles southeast of production is showing oil. Lake Centralia field has a mile north and a 2-mile west extension in the offing.

Arkansas

Six miles north of Permian lime production in Columbia County, a wildcat is showing for production from Nacatoch sand.

California

North Belridge field recorded a completion making 3700 barrels daily, the largest there in months.

Michigan

A 1½-mile north extension of Greeman-Redding district, Clare County, is expected to cause considerable drilling. In Heath Township of Allegan County a test initialed 50 barrels hourly from Traverse lime at 1460 feet to extend Diamond Springs field.

North Texas

The fourth producer of the intermediate lime zone of Panther field Archer County, flowed 150 barrels daily from 4372 feet. Two K-M-A outposts promise important extensions to the area. A southeastern Wichita County wildcat swabbed 126 barrels a day. Collinsville field of Western Grayson County has a well looking capable of a mile southwest extension.

Southwest Texas

Completion of two wildcats 12 miles apart was considered as being possibly the greatest strike for the Mid-Continent area for 1938. A well in La Rosa field, Refugio County, got an 85-foot sand body, enhancing the reserve considerably. In Jim Wells County, Alice pool's Vicksburg production was extended 2000 feet southwest. Near the discovery well of the Junction area in Kimble County a test cored an oil show in lime at 1420 feet. In Kendall County a wildcat appeared to be changing Sistersdale from the prospect to the proven fields list. Drilling for water in southwest Kinney County, a test got oil showings at 1130 feet. Bexar County recorded a new producing spot on the Alta Vista fault, a wildcat swabbing heavy oil from 1108 feet. McMullen County got a new field, a well swabbing small production from 1202 feet.

Texas Gulf Coast

North of Markham in Matagorda County a wildcat is setting casing for a production test of Frio sand at 7744 feet. Clinton field, Harris County, got a new sand at 4050 feet. Clear Lake field of the same county may receive a 6000-foot extension, a test showing 605 barrels daily.

South Louisiana

Converting Chacahoula salt dome to an oil field, a wildcat came in for 600 barrels of Miocene oil from 7253 feet. A Houma prospect wildcat in Terrebonne Parish continues to show oil around 10,000 feet. A new sand was cored at Caillou Island at 5294 feet. Preparations are being made to test a new sand below 10,000 feet at Jeanerette, St. Mary's Parish.

Oklahoma

South Braman pool, Kay County, got its second producer. Recent wildcat strikes have caused Greater Seminole area to hum with activity. St. Louis pool of Pottawatomie County is being pushed to the south. Jesse pool was extended ¼ mile south into Cole County.

Kansas

Three miles southwest of Oxford pool, Sumner County, a wildcat yielded the first Wilcox oil for the area. Near the single Viola lime producer of the Lake City pool, Barber County, a wildcat deepened to Arbuckle lime got 1211 barrels on potential test. In Ellsworth County, Stumps and North Stumps pools were drawn closer together by a gap producer and Edwards field was extended ¼ mile. Extensions were indicated by outposts of Fischer pool, Stafford County, and Hafferman pool, Rice County.

Comparison of Permits Granted for New Wells

STATE	Week Ending Sept. 10	Total this Mo.	Total this Year	Total this Date Last Year	1937 Year Total
Arkansas	7	10	175	171	240
California	26	60	868	1,118	1,584
Louisiana	14	34	918	886	1,227
Kansas	31	67	1,109	1,960	2,663
Michigan	27	60	596	693	958
Oklahoma	39	74	1,425	2,049	2,711
Texas	116	297	9,130	12,779	17,238
Total	260	602	14,221	19,656	26,621

Summary of Wells Completed in the United States Week Ending September 10, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1938	Total this Date, 1937
Alabama	.....	.....	.....	.....	.....	2	1
Arkansas	5	3	.....	2	5,160	159	81
California	31	28	.....	3	15,169	900	1,059
Colorado	.....	.....	.....	.....	.....	5	10
Florida	.....	.....	.....	.....	.....	.....	1
Georgia	.....	.....	.....	.....	.....	1	.....
Illinois	31	23	.....	8	6,378	955	136
Indiana	16	7	5	4	387	95	90
Kansas	28	19	.....	9	18,394	1,191	1,842
Kentucky	19	8	1	10	647	535	256
Louisiana	22	13	2	7	4,870	774	669
Michigan	23	12	.....	11	3,438	618	655
Mississippi	.....	.....	.....	.....	.....	11	10
Montana	.....	.....	.....	.....	.....	47	137
Nebraska	.....	.....	.....	.....	.....	1	.....
New Mexico	13	9	1	3	1,404	377	498
New York	16	15	.....	1	36	*483	*891
Ohio	26	14	7	5	274	669	1,037
Oklahoma	34	26	.....	8	17,776	1,503	2,207
Pennsylvania	40	34	.....	6	54	*1,516	*2,118
Tennessee	.....	.....	.....	.....	.....	2	.....
Texas	253	187	6	60	200,396	9,084	10,673
Utah	.....	.....	.....	.....	.....	2	.....
West Virginia	11	1	9	1	5	484	637
Wyoming	.....	.....	.....	.....	.....	74	72
Total this week	568	399	31	138	274,388	19,485	23,080
Total last week	503	345	39	119	278,187	.....	.....
Total this year	19,485	13,511	1,381	4,593	12,999,641	.....	.....

* Includes water-intake and pressure wells

Oklahoma Fields

Seminole and Pottawatomie counties most active. Second producer completed in South Braman pool. Gets a dry hole northeast of Lehmer discovery well.

Tulsa.—The cluster of oil fields in Seminole and Pottawatomie counties, developed after the Seminole strike 12 years ago, continues the most active area in Oklahoma. Its several recent strikes, which assure small fields, plus success in finding production on the edges of older fields, is responsible for almost one third of the drilling in the state.

Ramsey field, Payne County, first field found in Oklahoma in 1938, drew three more locations last week, following completion of as many wells, which gave it 13 producers, all within the bounds of the community block of 640 acres under development by Mid-Continent Petroleum Corporation.

The South Braman field, Kay County, drew its second producer last week and two more wells are under way.

In the week just passed initial production in Oklahoma drilling had a pickup over recent periods, as its 26 producing wells had combined an output of 17,776 barrels. This was due largely to the inclusion of one of the recent producers at Ramsey. There were 8 dry holes and 3 abandoned locations to give the week 37 completions, identical with the number of wells started.

Greater Seminole Humming

On the eastern edge of the North Earlsboro field, Seminole County, Atlantic Refining Company has added a producer in Pipkin 1, NE SW NW 2-10n-5e, which had 1500 feet of oil in the hole from 15 feet of Wilcox sand, top 4651 feet.

In the old Allen field, on the Seminole County side, Gilcrease Oil & Gas Company got a flowing well in the Sylvan shale. East Reed 1, NE NW NE 18-5n-8e, had Hunton lime at 3754 feet and top of the Sylvan at 3894 feet. At one foot in this formation it began showing and was treated with 2000 gallons of acid after which it flowed 535 barrels in 24 hours.

Recent wildcat strikes plus scattered minor extensions to older pools have pushed the Greater Seminole area well to the fore in field development in Oklahoma. It has 120 drilling wells, rigs and shut down tests, more than one fourth of the total for the state.

St. Louis pool, Pottawatomie County, most active part of Greater Seminole, is being pushed to the south. Most recent showing in that area is Richardson 1, SW NE 2-6n-4e, which swabbed five barrels an hour for six hours from 4015 feet. It will be treated with acid and perhaps deepened before an effort is made to complete. Two other tests are drilling nearby.

Trough Edge Well Shows

A producer is indicated for the east edge of the small Trough pool, Seminole County, where Sinclair Prairie Oil Company in Sharber 1, SE NW SW 15-6n-6e, found saturation in the Simpson dolomite between 3658 and 3688 feet. It will be acidized.

In the spots where recent strikes have been made, drilling continues to pick up. Another location south of the Edgeman discovery well, Seminole County, has been started by J. F. Newsome, Smith 1, 20-7n-6e, to give the area four drilling wells. Output of the discovery well has increased on the pump. The well, started by Young and Newsome, was sold to J. F. Smith and the Commercial Drilling Company. It is Edgeman 1, SEc 17-7n-6e, two miles west of the Little River field. In one 24-hour period it pumped 885 barrels and the following day pumped 723 barrels from Wilcox sand at 4380 feet. Only a small pool is indicated from seismograph records which prompted drilling the discovery well.

Cromwell Sand Failure

A dry hole a quarter of a mile northeast of the recent Cromwell sand discovery in Okfuskee County was recorded by Wrightsman Oil Company, whose Lehmer 1, SWc 24-11n-8e, was abandoned at 3509 feet in the Cromwell sand. The discovery well, C. W. Titus' Lehmer 1, C NE NE 26-11n-8e, is pumping 130 barrels of oil with some water from 3476 to 3481 feet.

Of the wildcats drilling in the Greater Seminole area, the Lincoln County test of British American Oil Producing Company, Markwell, C E½ E½ NE 26-12n-5e, has cored both the first and second Wilcox sands without finding saturation. Top of the first sand was at 5414 feet, top the second at 5478 feet. At 5512 feet preparations were made to run an electrical log.

A Pottawatomie County wildcat has been started by Summitt Drilling Company. Good 1, NWc SW 4-11n-5e, set surface casing at 132 feet.

Ramsey Busy

Following completion of three wells in the Ramsey field, Payne County, three other wells were started by Mid-Continent Petroleum Corporation, which owns a three-fourths interest in the 640-acre block, with Carter Oil Company holding an eighth interest and Sinclair Prairie Oil Company and Transwestern Oil Company a sixteenth each.

The 13 wells now producing have combined potential of 148,282 barrels. Proration is by agreement between owners of the block, and maximum flowing output is 165 barrels daily per well.

So far all production has been on the small community block, which also drew the three new locations, Gray 1, NE SW SW 18-18n-2e; south edge of production; Brandon 3, SE NE NE 13-18n-1e, west side of production; and Columbia 5, SW NE SW 18-18n-2e. Two dry holes have been drilled south of the block a half mile, and one dry hole was drilled 1½ miles north.

Jesse Extended

The Jesse pool was extended a quarter of a mile south into Coal County by completion of Continental Oil Company's Brown 1, NW SW SW 7-1n-8e, which flowed 2675 barrels in 24 hours from second Wilcox sand. Depth is 4603 feet; gas output, 1,500,000 cubic feet.

The first encouragement from the Coal County wildcat of Carter Oil Company, Mote 1, C E½ SW NW 19-2n-9e, came from the Viola lime 6630 and 6640 feet, where evidence of oil and gas were slight. The well is drilling in Viola lime below 6700 feet.

A shot of 48 quarts of nitro in-

OKLAHOMA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo—		
Magnolia, Bert Lackey 8, se nw nw 11-5n-9w (otd 4049 ft)	16	4049
Ohio Oil Co., Lackey 4, ne sw nw 11-5n-9w (otd 4273 ft)	1968	4272
Lackey 7, nw se nw 11-5n-9w (otd 4080 ft)	1428	4080
Magnolia, Cement-Edwards 4, sw se sw 25-6n-10w	65	4443
Sames 7, swc ne 35-6n-10w	*	3865
Creek—		
Sinclair Prairie, Jones 28, c w½ e½ se nw 3-17n-7e (pb 2570 ft)	30	2575
E. G. Betts et al, Warmark 1, nw sw nw 26-17n-7e	*	300
McAdams & Thornton, McMahan 2B, nec 36-17n-9e	150	2713
L. B. Jackson, Wilson 1A, ne nw nw 34-18n-8e	25	2639
Wood Oil Co., Gabrial 1, ne nw ne sw 24-19n-7e	50	2668
Garfield—		
Sinclair Prairie, Walker 30, c s½ se 24-22n-4w	18	1452
Ellison et al, School Land 1A, swc 13-23n-3w	*	1070
Grady—		
T. H. McCasland, Carter-Mecklenburg 1B, sec 6-3n-5w	20	1495
Hughes—		
Troup & Strickland, Brown 1, nw sw ne 32-6n-8e (pb 660 ft)	*	680
Lincoln—		
Wilcox O&G ,DeLozier 8, nwc sw 10-14n-6e	70	3150
Helmerich & Payne, Fitch 7, nw se ne 15-14n-6e	110	3005
Sinclair Prairie, Rose Buckles 5 "B", nw sw se 15-14n-6e	40	3034
Wilcox O&G, DeLozier 6, se nw nw 15-14n-6e	78	3021
Oklahoma—		
Hollenbeck, Sinopoulo 1, sw sw sw nw 15-12n-3w	720	6430
Osage—		
Devonian & Norbla, 1, ne ne ne se 8-24n-9e	*	2372
Pawnee—		
Selby O&G, Petteman 2, nw nw sw nw 24-20n-9e	*	2131
Peter Adamson, Thomas 12, sw ne nw nw 25-21n-8e	*	1171
Payne—		
Mid-Continent, C. Wetzel 4, se nw sw 18-18n-2e	11,900	4770
Deep Rock Oil Co., Little Chief 3, ne nw ne 4-18n-5e (pb 3465 ft)	6	3600
Pontotoc—		
Lake, Gray "B" 5, sec sw 25-5n-7e	38	2620
Superior Oil Co., Indian Roy 2, nw ne nw 36-5n-4e	20	2621
Osborn, King 1, nec se 32-5n-8e	42	2564
Pottawatomie—		
Phillips, Fried 5, nec 23-7n-4e	93	3126
Jones, School Land 1A, ne nw ne 36-7n-4e	405	4282
Seminole—		
W. B. Pine, Williams 7A, sw sw nw sw 22-6n-6e	28	2336
Sinclair Prairie, Tennison 3, c s½ n½ ne se nw 22-6n-6e (pb 2335 ft)	50	2376
Vallines, Millsap 1, se sw sw 23-7n-5e	90	2939
Wood Oil Co., Cudjo 2, sec ne 2-8n-6e	266	4177
Stephens—		
Johnson et al, Massey 1, sw sw sw sw 11-3s-5w	*	2065

*Failures; †Junked; ¶Million cu. ft. gas.

creased flowing out from the Oklahoma County wildcat between the Britton and Oklahoma City fields. Olson Oil Company has had Vanek 1, SE SW NE 4-12n-3w, in process of completion for two weeks. Previous to the shot the well had flowed as high as 12 barrels an hour, and this increased to around 20 barrels an hour through casing. Output is coming from second Wilcox sand between 6721 and 6768 feet, after plugging back from 6776 feet, where the output was cutting 6 percent water. The well is being tubed for final completion. Highest daily output through casing was 394 barrels. It will take its discovery right of 15,000 barrels while holders of surrounding leases seek an agreement on further development.

Another for South Braman

The second producer for the new South Braman field, Kay County, established itself as a good producer by flowing 140 barrels in an hour through casing, and then flowing 46 barrels through tubing in one hour, and 37½ barrels the second hour. Tide Water Associated Oil Company drilled this test on school land in SE SW SW 16-28n-12, a west offset to the discovery of Helmerich & Payne and the Ohio Oil Company.

Drillers of the first well are at 1500 feet in Wilbur 1, NW NE NW 21-28n-1w, a south offset, while they have made location for Wilbur 2, NE NW NW 21-28n-1w.

Holders of leases in the area are seeking a spacing program of one well to 20 acres.

Two for Lucien Edge

Two wells on the north edge of the Lucien pool, Noble County, are ready for completion. After a shot in the Wilcox sand between 5375 and 5419 feet, Sinclair Prairie Oil Company's Guthrie 1, NW SW SE 31-21n-2w, had steady flow of 50 barrels an hour through tubing. Previous to the shot it flowed by heads through casing at 25 barrels an hour. Shell Petroleum Corporation's Guthrie 2, SE SE SW 3-21n-2w, began flowing while drilling below 5440 feet.

In Garfield County the wildcat of Indian Territory Illuminating Oil Company, Kichin 1, C SE SE 17-22n-5w, is drilling below 6200 feet after setting 9-inch casing, and Champlin Refining Company has set 9-inch casing in Boehm 1, SWc NE 4-24n-8w, at 6638 feet in Simpson dolomite, top 6625 feet.

A Cleveland County wildcat was put on the drilling report last week when Big Chief Drilling Company began rigging up Straetger 1, NW NW SW 25-9n-2e, northeast of Norman. The block was assembled by Guy Hannum, formerly in charge of the land department of Transwestern Oil Company. The test is on acreage farmed out by Gulf Oil Corporation.

Another well is ready for testing in the Oolitic lime in the deep Fox-Milroy area, Carter and Stephens counties. Carter Oil Company deepened Lester 1 from 8087 feet to 8117 feet and ran 2½-inch tubing to 8042 feet, where first efforts to gain output will be by washing. The well is in C NW NW 35-2s-3w.

A test of the Hunton lime will be made in Feagin 1, C NW SW 3-2s-3w, by Carter Oil Company. The well failed to produce in the deep lime. Casing has been set at 4988 feet to perforate both the top and base of the Hunton lime.

The Texas Company has added a third deep test to Western Oklahoma by starting work on Smith 1 CNE NW, southern Caddo County. The block of around 10,000 acres is at the south end of a trend from the Wichita Mountains to the northwest. On the northwest end of this trend Continental Oil Company is drilling below 4600 feet in Procter 1, CNW 28-10n-20w, Washita County, on a block of 31,000 acres.

In the old Chickasha gas field, Carter Oil Company, as operator of a community block, is rigging up at CSE SW 26-5n-8w, for a 10,000-foot test.

Kansas Field Developments

Wildcat southwest of Oxford produces from Wilcox. Arbuckle production near one-well Viola lime pool. Extensions indicated for Fischer and Hafferman.

Wichita.—Two new fields were added to the list for Western Kansas last week from wells which first gave indications of commercial production in June.

In Sumner County S. A. Murphy of Wichita finally got pumping production from Wilcox sand in Tate 1, SEc NW 32-31-2e, three miles southwest of the Oxford pool. It is the first Wilcox sand production in the area.

In Barber County a well which earlier made small flows from the Wilcox sand was deepened to the Arbuckle lime to get pumping potential of 1211 barrels. The well is Grant 1-C, NEc 18-31-13w, drilled by Pryor & Lockhart and Foster Minerals Corporation. It is three-eighths of a mile from the single Viola lime producer in the Lake City field, owned by the same interests.

A connecting well was drilled between the Stumps pool proper and the North Stumps field, Ellsworth County. This county also drew an extension of ¼ mile for the Edwards field.

Extensions were indicated by showings in outpost wells of Fischer pool, Stafford County and Hafferman pool, Rice County.

Proven Areas Busy

Evidence of the trend of confining drilling to proven areas in Kansas came with publication of figures on total potential for the state for August. They rose to 3,603,253 barrels, an increase of 116,064 barrels over the total a month previous.

For the week just passed Kansas got an additional 18,394 barrels of initial production from the 18 producing wells completed. The week also had 9 dry holes and 1 input well completed. Against the 28 wells completed, 31 locations were staked.

Successful completion of a pumping producer in the Sumner County wildcat followed more than two months of effort. It began showing from the Wilcox sand late in June, when oil rose 2200 feet in the hole in Tate 1, SEc NW 32-31-2e, after penetrating the Wilcox sand at 3696 feet and drilling to 3736 feet. Oil began coming into the hole at 3722 feet. Base of the Wilcox was found at 3741 feet, but the hole was carried to 3747 in the Arbuckle lime. Bailing had failed to lower the fluid level, however, it was decided to shoot. A sand load as well as an oil load was put on the 30 quarts, used between 3709 and 3734 feet. The result was a long and difficult cleaning out job, with the pump used frequently but with recovery only trivial until the hole was thoroughly reconditioned last week, when it pumped 353 barrels in one day.

The well is about 3 miles southwest of the Oxford pool, where production is from the Stalnaker sand and the Arbuckle lime. The Tate well is the first Wilcox production for the area, a formation which yields but little oil in Kansas. The test has drawn considerable attention because Jerome (Dizzy) Dean and John (Pepper) Martin, two outstanding baseball players, hold small leases which came as a gift about the time Murphy was starting the well because the two players autographed baseball bats for his son.

The Barber County successful producer is likewise the result of drilling deeper and testing since mid-June. At that time Pryor & Lockhart and Foster Minerals Corporation were striving for Wilcox sand production in Grant 1-C, NEc 18-31-13w, between 4534 and 4538 feet. In this formation it flowed by heads and swabbed small amounts. Finally deeper drilling began and the hole was carried to 4611 feet in the Arbuckle lime, where it made a pumping potential of 1211 barrels. This well is only ⅜ miles south of the Viola lime producer of the same partnership in Lake City field. It is, however, the first production from the Arbuckle lime in that area and the field has drawn the name of Lake City Arbuckle field.

Gas Producer Indicated

A connection between the Stumps and North Stumps pools, Ellsworth County, is indicated by the showing in Atlantic Refining Company's Dougherty 1, SW NW 33-17-10w, which will be acidized before taking potential in the Arbuckle lime at 3266 to 3270 feet. After the plug was drilled for 7-inch casing set on top of the lime at 3249 feet, oil of 41.5 gravity rose 2900 feet in the hole. The test then swabbed 200 barrels in 5 hours. An acid load of 2000 gallons was used. Tubing will be run for potential test.

An extension of a quarter of a mile to the northwest was assured for the Edwards pool, Ellsworth County, when Continental Oil Company established potential

of 1830 barrels from 3250 feet in the Arbuckle lime in Janzen 1, SWc 32-17-8w.

Extension Indicated

A saturated core in the Arbuckle lime between 3319 feet and 3322 feet brought decision by Western Kansas Oil & Refining Company to run 7-inch casing to test Reiff 1, SW SW SE 35-16-13w. This test is ¾ miles from production in the Ainsworth pool, Barton County.

Should further testing prove successful, an extension of 1½ miles to the southeast will come to the Fischer pool, Stafford County, where Stanolind Oil & Gas Company's Curtis 1, SEc 31-21-12w, had top of the Arbuckle lime at 3638 feet and cored to 3640 feet, recovering a section showing both porosity and saturation.

An extension of ½ mile to the northeast for Hafferman pool, NWc 5-19-9w, Rice County, was indicated when oil rose 700 feet in the hole in Reese 1 of E. V. Holland. The showing came from 3420 feet in the Arbuckle lime.

Wildcat Shut in

The Kingman County wildcat of Bunte Brothers, Shepher 1, C SE 10-27-10w, has been shut in to gauge pressure and determine source of the small showing of last week. This test was drilled to the Arbuckle lime, then plugged back and perforated between 3475 and 3571 feet. After this it swabbed about 100 barrels of fluid, 25 percent of which was water.

A dry hole south of Stumps pool, Rice County, apparently limits this area. Sinclair Prairie Oil Company drilled Radenberg 1, SE NW 8-18-10w into the Lansing lime, source of Stumps production, and found it dry. It was then carried to the Arbuckle, top 3295, and shut down at 3301 feet.

An outpost Kansas wildcat was abandoned last week after Vickers Petroleum Company, drilled Bozarth 1, C SW SW 15-5-24w, North County, to 3484½ feet into the Simpson dolomite. It had top of the Arbuckle at 3840 and cored between 3870 and total depth. The test was in the northern tier of Kansas counties, 50 miles northwest of prolific spots in Ellis and Russell counties.

The Ness County wildcat of Sinclair Prairie Oil Company, McKinley 1-A, SW NW 26-18-26w, south of the Aldrich pool, was abandoned in Mississippi lime, top 4466 feet, total depth 4709 feet.

KANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Barton—		
Eason Oil Co., Ainsworth 2, nw se se 33-16s-13w (input well)	...	3742
Shell, Hoffman "C" 2, nec 1-16s-14w	2601	3344
Continental, Underwood 1, nwc ne 10-17s-13w	1454	3372
Stanolind, F. Panning 15, nec 2-20s-11w	189	3302
Elmer Ash, Schartz "B" 1, nw ne sw 7-20s-11w	555	3351
Duwe, Farris & Atlantic, Sporn 1, swc se 26-20s-11w	*	3383
Butler—		
Tide Water, Noel 1, nec sw 28-23s-5e	*	2550
Simpson Oil Co., Ins. Co. 1, swc 15-25s-3e	*	3162
T. S. Dustin, Warner 1, se nw ne 17-27s-5e (otd 2008 ft)	*	2008
Cowley—		
Lloyd-Frost & Study, Elder 2, sw nw ne 4-32s-3e (pb 3181 ft)	1670	3287
Ellis—		
Wolf Creek Oil Co., Bemis "C" 1, se sw sw 33-11s-11w	*	3678
C. B. Davis, Smith 1, sw nw ne 11-12s-16w	225	3391
Greenwood—		
Mendenhall, Coffman 1, se sec sw 17-24s-13e (pb 1622 ft)	*	1638
McPherson—		
Joe Morine, Suffield 1, sw nw se 25-19s-2w (otd 2948 ft)	120	2965
Ness—		
Oriental Oil Co., Tenny 2, nec sw 19-18s-25w (pb 4454 ft)	5	4475
Norton—		
Vickers Pet., Bozarth 1, c sw sw 15-5s-24w	*	3884
Reno—		
Barnsdall, Sabine "C" 1, nwc se 11-23s-4w (otd 3566 ft)	108	3775
Rice—		
Skelly, Vokland "B" 4, ne sw sw nw 5-18s-10w	1215	3012
Transwestern, Habiger "B" 2, nec 5-18s-10w	1530	3263
Shell, Saint 1, cwl sw se se 10-19s-9w	992	3265
Shell, I.T.I.O. & Cities Service, Flora 1, ne swc ne 12-19s-10w	*	3338
Russell—		
Stewart, Bronson 1, nw ne se 20-11s-15w	225	2995
Mid-Continent, Rogg 1, nwc ne 32-14s-13w	1784	2911
Coralena, Sellens 3, sw se sw 20-15s-13w (otd 3300 ft)	1202	3300
Brunson et al, Fred Krug 1, nw ne ne se 13-15s-14w	*	3373
Cities Service, Tittle "D" 1, nwc ne 14-15s-14w (pb 3104 ft)	1340	3111
Stafford—		
Rowley et al, Sittner 1, sec ne 35-21s-12w	1230	3575
Atlantic Refining Co., Gates 7, ne se se 27-21s-13w	1949	3644

*Failures; †Junked; ¶Million cu. ft. gas.

West Texas Fields

Means field edge well flows at 7488-barrel rate.
Dean pool outpost encounters salt water in lime.
Second prolific producer being added to Emma pool.

Midland, Texas.—The potential rating of Means field, Andrews County, was materially enhanced when the Humble Oil & Refining Company's J. S. Means 49, near C NE PSL Section 10, Block A-35, flowed at the rate of 7488 barrels after multiple acid treatment of Permian lime at 4480-4510 feet. It is on the east edge of the field, and ¼ mile southeast of the previous record producer. The well flowed 60 barrels hourly natural, and averaged 312 barrels hourly for 6 hours through open tubing and 2 2½-inch casing outlets after 3-stage treatment with 10,000 gallons of acid. The gas volume was rated at 1,680,000 feet daily.

Salt Water in Lime

The Texas Company's D. S. Wright 1, outpost for the Dean pool, Cochran County, encountered salt water in lime at 4935-39 feet, with an elevation of 3791 feet, and has plugged back to 4926 feet to test for shut-off. A small show of oil and gas was passed up at 4885-93 feet. It is 1¼ miles west by north of Geo. P. Livermore Inc.-J. R. Meeker's Wright 1, the discovery producer, and encountered water at a higher structural position than the oil and gas level logged by the original well. Magnolia Petroleum Company's Wright 1, NEc Labor 7, League 96, 1½ miles north by east of the discovery, was drilling at 2200 feet. It requires production by November 28 to perpetuate a lease on 5303 acres.

The north portion of Emma pool, Andrews County, is adding its second prolific oil well. Sinclair Prairie Oil Company's Emma Cowden 3, near NWc NE T&P Section 1, Block 44, flowed 248 barrels of oil natural in 12 hours through casing from lime at 4173-4218 feet. An east offset to the first flush well for the area, it is due to materially boost its yield after treating the saturated zone with acid. Considerable development work is scheduled to be carried on in this area, due to competitive drilling that will arise from the strip of acreage that borders Section 1 on the north and east.

Crane and Ector counties gained new operations the past week through acreage farm-outs by large interests. The east flank of the North Cowden field, Ector County, has been given an outpost project by the Octagon Oil Company's E. M. Woods 1, SWc NW T&P Section 25, Block 43, T-1-N. Amerada Petroleum Corporation assigned the 160-acre tract, retaining 3/16 over-riding royalty until development costs are amortized by production revenue. Then the property will be owned 50-50. Ted Keith et al have made location for King Ranch Oil & Lignite Company

WEST CENTRAL TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Brown County—		
Buckler & Shive, Jacobs 1	12	1563
Gilcrease Oil Co., Perry 4	15	1244
R. B. Irving et al, Giddings 1	6	1631
W. L. Pearson Prop., Cox-McInnis 1	8	2435
Whitesides et al, Rogers 1	20	1245
Callahan County—		
Cooper-Weeks & Hughes Straley 1	*	4540
Jackson et al, Thompson 1	*	1625
Pueblo Pet. Co., Williams 2	*	945
Coleman County—		
Anzac Oil Corp., Burk 1	10	2458
Cooper Bros.-H. O. Wooten et al, Stockard 1	50	3657
Coleman O. & G. Co., Wells 1	¶3	2129
Schaffner et al, Roper 1	*	984
Comanche County—		
McCarter & Anderson, Smith 1	*	3000
Eastland County—		
Boker et al, Mulloy 2	30	3100
Shackelford County—		
Bailey Tr., Andrews 4	*	535
Beck et al, Dyer 1	*	1112
Evans & Christie, Lee 2	25	1182
J. G. Hammond-Lawson Pet. Co., Lee 3-A	¶½	1125
Lee 6-A	53	1045
Lee 7-A	20	1056
Iron Mt. Oil Co., Coker 1	500	3245
Ivy 4	540	3220
Jones & Stasney, L. G. Davis 1, sec 50	*	1545
Lee & Key, Dollar 6	5	528
Dollar 7	*	785
Lee 1,	10	1079
Neff-Meeks & Phillips, F. Clausell 1	*	853
Owens-Snebold Oil Corp., Ivy 6	306	3225
Ivy 7	447	3222
Pemeta Oil Co., McCasland 11	4	773
McCasland 12	*	770
St. Marys O. & G. Co., M. Davis 7	4	1651
Ungren & Frazier-Jones & Stasney, McKeever 1	*	3280
Wrightsman Oil Co., Powers 1	*	1933
Stephens County—		
Lone Star, McKee 1	¶1½	3737

*Failures; †Junked; ¶Million cu. ft. gas.

1, in the north corner of the north 40 acres of H&TC Section 22, Block 35, offsetting production. The Texas Company assigned the lease, retaining 1/16 over-riding royalty.

Three substantial property sales have been concluded in the district between independents, and others are reported to be pending. In the Payton pool, northern Pecos County, British-American Oil Producing Company added to its holdings through the purchase of J. J. Dorr et al's R. B. Payton 591-acre lease, H&GN Section 99, Block 8, with 5 flowing wells, for $56,250 cash and $200,000 additional from oil production. This deal involved the discovery site. The purchaser entered the area last March through the acquisition of L. B. Hoss and Frank Downey's H. Cordez-Empire 1, producer in the 2000-foot sand, and 480 acres for $64,000 cash, with the latter reserving 1/16 over-riding royalty.

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Means)—		
Humble, Means 48	1652	4520
Crane County (Sand Hills)—		
Humble, Tubb 19	1930	4440
Ector County (Foster)—		
Barnsdall, Foster 16, sec 18	1070	4256
Broderick & Calvert, Foster 9	1393	4282
Schermerhorn Oil Corp., Johnson 4-B	991	4195
Stanolind, Cowden 13-B	715	4170
Ector County (Goldsmith)—		
Gulf, Goldsmith 116	32	4185
Landreth Prod. Corp., Scharbauer 2-M	1336	4185
Scharbauer 3-M	1270	4175
Phillips-Pure, Cowden 38	1439	4155
Ector County (Harper)—		
Broderick & Calvert, Cowden 3	1104	4280
Texas Co., Parker 6-B	1387	5196
Wentz et al, T. P. Land 2-B	2490	4154
Ector County (Jordan)—		
Shell, University 1-E	1448	3632
Sinclair Prairie, University 2-79	956	3642
Ector County (Judkins)—		
Gulf, Connell 4-A	371	3660
Ector County (North Cowden)—		
Stanolind, Roberts 11	868	4378
Fisher County (Wildcat) —		
T. G. Shaw Oil Corp.-Texas Co., Stribbling 1	*	4500
Fisher County (Royston)—		
Sinclair Prairie, F. Steele 6	*	3352
Fisher County (Rhotan)—		
Magnolia, Smith 3	326	3496
Howard County—		
Eastland Oil Co. et al, Snyder 2	408	2842
Lockhart Pet. Co p., Scott 2	678	3070
Magnolia, O'Daniel 7	376	2793
O'Daniel 9	415	2802
Merrick, Murphy & Lamb, Chalk 1-B	1654	2999
Shell, T. P. Land 2-A	198	2850
Jones County—		
Erin Pet. Corp., Caton 1	*	1466
Bert Fields & Smith, Carter 2	18	1931
Grisham-Hunter Corp., Applin 2	*	2659
W. J. Healey & Walters, Daugherty 3	310	1920
Humble, Hollums 12	465	3253
W. J. Jones Associated Oil Co., Young 1	*	2241
Sandy-Ridge Oil Corp., Steffins 1	300	1903
Loving County (Mason)—		
Argo Oil Corp., T. P. Land 1-B	*	4165
Pecos County (Masterson)—		
Aero Gas Ref. Co., Gregg 6	101	1495
Pecos County (Payton)—		
British-American (was J. J. Dorr), Payton 5	193	2028
Upton County (McCamey)—		
Brown-Hancock-Hines Oil Corp., Baker-Tidal 5-C	1104	2354
Humble, Ricker 24-B	228	2685
Shell, Baker 2	998	2225
Ward County—		
Gulf, Hutchings 111	432	2750
Winkler County (Halley)—		
Skelly, Halley 27	2617	2842
Winkler County (Kermit)—		
Magnolia, Walton 174	1419	2946
Walton 176	1758	2915
Yoakum County (Bennett)—		
Honolulu Oil Corp., Bennett 6-677	2064	5260
T. P. Coal & Oil Co., Bennett 10	1412	5235
Yoakum County (Wasson)—		
Shell, Lowe 3	816	5055
Wynne, Tr., Willard 3	266	5010

*Failures; †Junked; ¶Million cu. ft. gas.

Other Deals Made

Sylva Oil Company, McAlester, Oklahoma, made its first entry into the the district as a producer in acquiring Choate-Hogan et al's M. L. Baker-Conoco 230-acre lease, Section 7, Block R, M. S. Denton Survey, McCamey field, Upton County, for $110,000 cash and $190,000 payable from ⅛ of the production. The lease has 6 pumpers in the 2300-foot lime, with a base allowable of 232 barrels daily. Continental Oil Company farmed out the lease in 1936, retaining 1/16 over-riding royalty and mineral rights below 2750 feet. The Oklahoma buyer plans to drill 10 additional tests.

Choate and Hogan also disposed of the bulk of their holdings in the Crockett shallow pool, northwestern Crockett County, in selling 3 wells in the 1400-foot sandy-lime zone and 2160 acres to the Gilcrease Oil Company, San Antonio, for $102,500 cash and notes. The 3 small wells, and the discovery, which was retained by Choate and Hogan, indicate that production prevails over a large area. The pool is dependent upon tank truck shipments for a market outlet. All of the acreage centers upon University of Texas fee, and carries 1/24 over-riding royalty retained by majors.

Ordovician Attempt Abandoned

Gulf Oil Corporation's M. B. McKnight 4, second Ordovician test for the McKnight pool, western Crane County, was abandoned after testing water in the Ellenberger limestone at 6558 feet. A small show of oil and gas was logged in Simpson, topped at 6160 feet, with an elevation of 2701 feet. The heavy duty rig has been moved by the company to Sand Hills field to drill W. N. Waddell et al 9, a projected Ordovician test.

J. E. Fitz-Patrick et al's Carr 1, situated 2 miles south of the Wilson one-well pool, Ward County, encountered salt water in the lower Delaware sand at 5160-62 feet, and was drilling at 5180 feet. Gas production, varying from 500,000 to 1,000,000 feet daily, was passed up at 5101-52 feet.

Gulf Oil Corporation's Mallett 2, SWc Labor 25, League 34, northeast outpost for Slaughter field, Hockley County, flowed 165 barrels of fluid, 10 percent b.s. and mud, in 24 hours while cleaning out after 250-quart nitro shot at 4985-5060 feet. It is 3 miles east by south and same distance north by east of production, opening an important scope of territory for development. Sulphur water was encountered in drilling to 5090 feet, or 1569 feet sub-sea, and the hole was plugged back to 5070 feet.

TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Gulf, E. Cooper 25	155	3161
Gray County—		
Kewanee Oil Co., Smith-Rest 23	720	3255
Texas Co., M. B. Davis 15	3747	2770
Hutchinson County—		
Gulf & Panhandle Ref. Co., Dial 83	482	2960
Holmes et al, W. H. Lyall 4	486	2705
Huber Pet. Co., Herring-Texas Co. 1	¶7.8	2883
Magnolia, S. W. Oil & Dev. Co. 7	323	3133
Phillips, Jordan 8	181	2980
Moore County—		
Texoma, Coon 8-M	¶28.6	3466

*Failures; †Junked; ¶Million cu. ft. gas.

Pardue outpost test is being drilled deeper

Abilene, Texas.—Texas Pacific Coal & Oil Company's Livingood 1, north outpost for the Pardue pool, Haskell County, was drilling at 2820 feet to test the Palo Pinto lime expected near the 3200-foot level after developing salt water in the Adams Branch at 2802-11 feet. It was rated at 75 barrels daily natural in the latter horizon, and failed to respond to treatment with 1000 gallons of acid. The second treatment with 2000 gallons of acid yielded hole full of water, and less than one barrel of oil daily on extended production test.

Texas drilling permits total 116 for week

The Texas Railroad Commission last week approved permits for drilling 116 new wells in Texas, 65 less than were allowed the week before.

One permit was approved in the East Texas field in Cherokee County, while five locations were reported from the remainder of the East Central Texas area.

There were 35 locations reported from West Texas, including 11 in Ector County, while 13 were listed from West Central Texas.

Permits were approved for drilling 23 new wells in the Gulf Coast area, while Southwest Texas operators reported 22 locations.

The commission approved five new locations in the North Texas District, and 12 locations were reported from the Panhandle.

Broad range of subjects for Los Angeles A.I.M.E.

A symposium of technical papers dealing with subjects ranging from geophysics to those dealing with oil after it is in the tank is planned for the October 20-21 meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers in Los Angeles.

Harry P. Stolz, chairman of the program committee, tentatively announces the following papers:

Interpretation of Deeply Buried Structures; Geophysical; Geological, by Walter English, W. S. W. Kew, and others.

Theoretical Reservoir Conditions: Physical Relationship of Oil and Gas, by John F. Dodge.

A Suggested Cause and Measure of Retrograde Condensation and Retrograde Vaporization, by W. H. Geis.

Field Development and Field Operations, by Stanley Herold.

Modern Trends in Drilling Equipment, by A. H. Bell and others.

Current Trend in Drilling Practices, by A. S. Hayes and others.

A Resume of the Technique and Economics of Coring, by Sam Grinsfelder.

Core Analysis, by Howard C. Pyle and John E. Sherborne.

Formation Tests, by D. T. Hoenshell.

Casing and Cementing: Requirements of the California State Division of Oil and Gas, by E. Huguenin; Casing Trends, by N. W. Wickersham and Mr. Fromme; Cementing, by E. L. Davis.

Production Equipment, by C. A. Yeatman.

Completion Methods, by W. Clarke.

In the short space of 15 years petroleum technologists have made a 3-cent cut in the cost of manufacturing a gallon of gasoline from crude oil.

Stokers prefer oil-treated coal because it feeds better, gives an even fire bed and better initial combustion.

North Texas Developments

Panther deep lime gets flow of 150 barrels in fourth well.
Proration restrictions materially cut K-M-A drilling.
Grayson County test indicates attractive oil possibilities.

Wichita Falls, Texas.—The intermediate deep lime horizon in the Panther field, northern Archer County, contributed its fourth oil producer when Helmerich & Payne, Inc. and Blackwell Oil & Gas Company's Wilson 3, SEc Section 25, flowed by heads when tested through casing at 4365-72 feet. The production is estimated at 150 barrels daily, and is from sandy-lime member of the lower Strawn series. Previous completions in this zone are making their restricted production allowable without the aid of nitro shot or acid.

Sinclair Prairie Oil Company's Hood 1, NEc Section 18, situated about one mile west of the Panther area, was drilling at 2100 feet.

Panhandle Refining Company et al's Prideaux 1, southeastern Archer County lime project, tested salt water when the hole was unloaded at a plugged back depth of 3275 feet. Investigation revealed that the top of the plug had been forced down below the original level, and another plug has been set. This well passed up oil saturation at 3272 feet in fulfilling 4755-foot depth contract. Seven-inch pipe was cemented at 3253 feet.

Severe production restrictions imposed upon K-M-A operators, who are confronted with pipe line proration along with 5-day production weeks, have exacted a heavy toll in field work. The deep area accounted for only 7 new operations the past week. Total of 41 tests are in process of completion, and rotary rigs are in service on 24 additional projects that are drilling between casing points. Five projects are temporarily inactive, and surface pipe has been landed for 10 proposed tests. Derricks and rigs are in place at 10 sites, and the current report lists 34 locations, making a total of 124 operations, or less than 50 percent of the number carried the fore part of June.

Most important production extensions given the K-M-A field have occurred along a comparatively narrow trend to the west. Consolidated Oil Company et al have two tests awaiting completion that promise to add a large scope of oil territory. Griffin & Martin 1, SE NE SE H&TC Section 9, Block 7, 1 mile southwest of nearest production, cored oil-saturated sand at 3967-82 feet, involving a high structural position, and has cemented 7-inch pipe at 3912 feet for a production test. Top of big lime was called at 3865 feet, or 10 feet lower than the company's James 1, currently the most westerly producer. The partnership's G. B. Ancell 1, near NW NE SW H&TC Section 35, Block 6, Wilbarger County, 3 miles west by north of Griffin-Martin 1, logged oil show in broken sand at 4080-96 feet, and cemented pipe for a test. Top of the K-M-A lime was called at 3945 feet, or 107 feet lower structurally.

Geier Bros., Inc. and F. B. Jackson's Preston 2, near NW NE NW H&TC Section 20, Block 7, classed as an inside location for the west extension area, checked low on structure in logging top of lime at 3878 feet, and shut down at 4025 feet after coring thin oil sand at 4015 feet. Bridwell Oil Company's fee 3, SEc of 72.3-acre lease, P. Castleman Survey, A-36, near flowing production in the northeast portion of the field, failed to encounter sufficient saturation and porosity in the Strawn to make a producer and was abandoned at 4075 feet.

Petroleum Producers Company and Continental Oil Company's State Asylum 1, southeastern Wichita County wildcat, swabbed 126 barrels in 24 hours on the latest test after cleaning out cavings formed following 100-quart nitro shot in Ellenberger at 5350-75 feet. The bulk of the oil is believed to be coming from the Bend at 5079-5128 feet.

Collinsville's second well mile from discovery

Wichita Falls, Texas.—A major extension for the Collinsville one-well field in western Grayson County was in process of completion the past week with prospects favorable for attractive production from the lower lime horizon. Mildred Oil Company's L. C. Neatherly 1, Chas. Quillen Survey, A-989, situated about one mile southwest of the discovery pumper, filled with 31-32 gravity oil in 9 hours and flowed when agitated after gun-perforating casing with 67 shots at 3862-75 feet. It will be equipped for a pumping test. Top of the sandy-lime zone, carrying oil saturation, was called at 3868 feet, and casing was landed below the pay at 3922 feet after developing bottom-hole water at 4023 feet. The Collinsville pool was discovered early last year when Denver Producing & Refining Company's J. R. Singleterry 1 pumped 57 barrels of 27.6 gravity oil initial after light shot in pay at 3862-76 feet, having plugged back from water at 4219 feet. Production declined to about 10 barrels daily, with an aggregate yield of 3175 barrels of oil through 1937. The oil is marketed by tank trucks.

Sinclair Prairie Oil Company is reported to have taken an option on a 7500-acre Grayson County block, centering about 2 miles northeast of Van Alstyne, after preliminary geophysical survey. The block was assembled by Barton et al, with an obligation to start a 6000-foot test by October 1.

The Ordovician horizon in the Walnut Bend area, northeastern Cooke County, yielded salt water with a minor show of gas when formation tester was used at 5399-5453 feet by Sinclair Prairie Oil Company's S. H. Putman 1, T. W. Ward Survey, A-1089. The test was made after coring sand section, possibly the Simpson series, at 5435-48 feet. Putman 1 was coring hard lime, which has been classed as the Ellenberger in age, at 5490 feet. It is located 1650 feet north by west of the company's Best 1, which flowed 880 barrels natural to establish a new pool June 2, 1938, from the Deese (Strawn) sandy-lime at 4887-4900 feet. This oil zone was structurally low in Putman 1, and carried salt water with a minor show of oil.

Completion of a small oil producer was in prospect for Walter H. Gant et al's Bryant Edwards 1, Clay County wildcat, situated 6 miles east of Henrietta and the same distance northwest of the Worsham field, after gun-perforating casing opposite the Marble Falls lime section at 5794-5839 feet. The well filled 75 feet with oil overnight. It was a failure in Ellenberger at 5991-6354 feet. The hole was plugged back to 6069 feet for 50-quart nitro shot at 6017-57 feet, and acid treatment at the same level. Seven-inch pipe is cemented at 5997 feet.

NORTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (K-M-A)—		
Gem Oil Co., Ferguson 2, blk 16	1016	3874
Archer County (Panther)—		
Burns et al, Ahrens 2, sec 127	120	3971
Archer County—		
Retsal Drl. Co., C. J. Key 1	*	4004
Shappell Oil Co., G. Bell 10, sec 27	124	992
Underwood Drl. Co., Campbell 27-B, sec 1378	*	1018
Baylor County—		
Rogers et al, C. F. Elam 1	*	1810
Clay County—		
Burns et al, Lyles 1, blk 27	*	5606
Stanford et al, J. Culbertson 1, blk 25	*	1402
Cooke County—		
Glasscock et al, Bailey Inglish 1	*	2680
Jack County—		
Champlin & Bass, Mantooth 3	334	3263
Danciger, Bailey 1-B	171	2770
Deka Oil Co., Henderson 4, blk 2	*	401
Gilmore et al, J. M. Martin 2, sec 3328	*	599
Grace & Barrow, Hoefle 1	*	479
Hill & Hill, Kuykendall 1-B	700	3229
Mar-Tex Oil Co., Kuykendall 5-B	253	3156
Nelson Oil Synd, Henderson 3	400	2776
Spradling et al, Smith 1	*	396
Montague County—		
Bridwell Oil Co., Hutson 1	*	1806
Wichita County (K-M-A)—		
Anderson et al, Perkins 1	50	4051
Barnard et al, Fassett-Tuttle 1	480	4001
D. H. Bolin-Jim Whittington, Waggoner Bros. 5, sec 21	600	3972
Bridwell Oil Co., J. S. Bridwell 3	*	4075
Al Buchanan-Blanco Oil Co., Waggoner Bros 2, sec 8	488	3800
J. A. Chapman-Ed. McFarlin, Waggoner Bros. 5-A, blk 26	648	3828
Continental, Waggoner Bros. 6-B-C, lot 14	728	3789
Waggoner Bros. 2-B-D, sec 11	456	3800
Deep Oil Dev. Co., Kemp 2, lot 5	720	3847
Dorain-Geier Bros.-F. B. Jackson, Mitchell 5, lot 7	1360	3855
Preston 2, sec 20	†	2284
Fullwood et al, Waggoner Bros. 2, sec 13	480	3769
Geier Bros.-F. B. Jackson, Mitchell 4	688	3876
Haberle & Thornton, First Nat'l Co. 3-B, blk 36	400	3715
King Oil Co.-Perkins-Cullum, Pettit 3, sec 27	1850	3858
Lincoln & Moore, Munger 4-B, blk 24	608	3870
McCutchin Drl. Co., Waggoner Bros. 1, sec 11	560	3910
Ross et al, Mitchell 23, lot 5	496	3878
Sunray Oil Co., Denny 1	300	3892
Texas Co., Kemp-First Nat'l Co. 3, blk 26	424	3845
Wichita County—		
Bell O. & G. Co., Powell 37	10	1278
Mogren & Anderson, Mertens 9	7	944
Wichita County (Jackson-Canyon)—		
King Oil Co. et al, Rathke 1, blk 20	608	2639
Wilbarger County—		
Golding Est. & Cochran, Waggoner Est. 4-S, sec 30	15	1940
Peckham et al, Waggoner Est. 1, sec 41	*	4027
Target Drl. Co., Waggoner Est. 1, sec 27	*	4417
Wise County—		
M. O. Boulter & Layton, Dobbs 1	*	393
Young County—		
Qualls et al, Richardson 1	80	701
Sweeney et al, Hutchins 1, sec 230	†	550

*Failures; †Junked; ¶Million cu. ft. gas.

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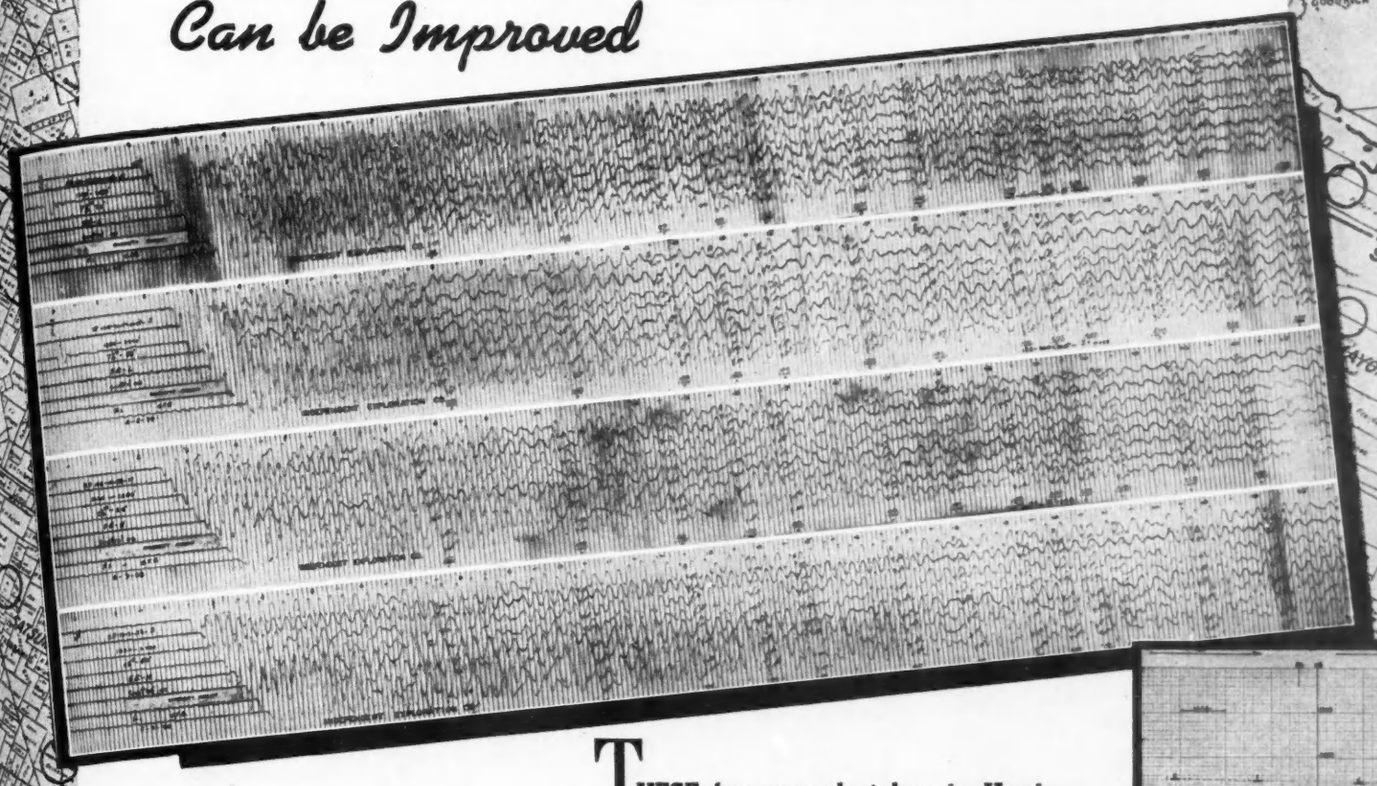

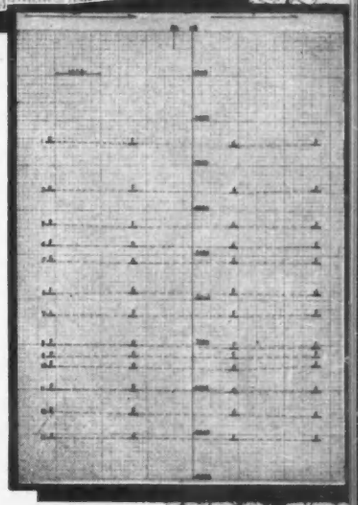

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East Texas Fields

Panola County deep test having trouble in salt

Shreveport.—The Texas Company's Claude Adams 1, Thomas Cox Survey, Panola County, Texas, deep test that logged top of Permian salt at 11,067 feet, thereby indicating that the Permian lime does not exist on the west side of the Sabine Uplift, last week was trying to unlodge stuck drill stem, with total depth of 11,030 feet, still in the Permian salt. Elevation is 287 feet. It is the deepest test ever drilled in the East Texas border counties and next to the deepest ever drilled in the Shreveport territory, being exceeded in depth only by R. W. Norton's Payne 1, Section 27-23n-16w, Caddo Parish, that went to 11,486 feet.

The most southern test in the Jefferson end of Rodessa, and just north of the Jefferson city limits, in Marion County, was swabbing last week at 6000 feet in the Gloyd formation, after making some oil following acidization. This test is Arkansas Fuel Oil Company's Baggett 1, Urquhart Survey.

EAST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Joiner Area—		
Humble, Wilson 13 (96.9-ac)	3500	3633
Hunt Oil Co., Bradford 17-B (98.15-ac)	100	3668
Fair 39-C (211.4-ac)	7200	3602
Land Drl. Co.-Jones, Tyiska 1-B (5.1-ac)	2400	3796
Ohio, Cross 91 (814.44-ac)	4500	3725
Griffin 19 (85-ac)	600	3715
Sayre Oil Co., J. Cansler 9 (38½-ac)	5400	3758
Smith et al, Deason 3 (5-ac)	2000	3649
Sun, Selman 13 (67-ac)	3500	3750
Sutton & Hawkins, Vinson 9 (21.6-ac)	80	3588
Vaughn et al, Alford 12-a (80-ac)	360	3757
Kilgore Area—		
Adams et al, Presbyterian Church 6 (85/100-ac)	3600	3549
Gulf, Terrell 12 (60.26-ac)	4500	3616
Humble, Sexton 40-B (258.6-ac)	1500	3714
Massengill et al, Gill-Shell 3 (5.6-ac)	3000	3624
Overton Ref. Co., I&GN 13 (19.58-ac)	1200	3565
Shell, Watson 82 (385.2-ac)	8800	3685
Sun, Morton 32 (336.24-ac)	1500	3439
Wrather & McGee, Hughey 4, blk 118	500	3556
Longview Area —		
Cities Service, Akin 22 (100-ac)	9200	3644
Bander 19 (92-ac)	8800	3672
Humble, Hughes 50 (245.6-ac)	6500	3672
Willingham 17 (100.6-ac)	4000	3725
McCurdy et al, Richey 7 (14-ac)	7200	3562
Shell, Slaton 21 (123.65-ac)	9000	3686
Slaton 24 (123.65-ac)	9200	3686
Stanolind, Stuckey-Thrasher 21-B (80-ac)	8000	3616
Stanolind-Tide Water, Snoddy 3-A (13.33-ac)	7000	3575
Sun-Seaboard, J. Rollins 21 (87-ac)	...	...
Anderson County (Long Lake)—		
Tide Water Associated-Seaboard, Shaw-Cern 10	¶115	5345
Franklin County (Talco)—		
Humble, Humble-Penn 3 (700-ac)	289	4306
Henderson County (Flag Lake)—		
Humble, Hearne 1 (208-ac)	87	3055
Leon County (Long Lake)—		
Irvine et al, Carter 3-A	*	1305
Van Zandt County (Van)—		
Van Zandt Oil Synd., C. S. Coker 3	5	1258
Titus County (Talco)—		
Lucey et al, Williams 15 (319.85-ac)	80	4299
Magnolia, Chapman 3 (341¾-ac)	210	4326
Anderson County—		
Gardner et al, West 1	*	5747
Falls County—		
Hayes et al, Garrett 1 (20-ac)	30	1365
Hill County—		
Russell et al, Holland 1	*	622
Limestone County—		
Johnston et al, Speight 2	*	3701
Henderson County —		
McElreath & Suggett, Dean 1 (35-ac)	*	4650
Marion (Jefferson Rodessa)—		
Arkansas, Holland 4, John Hanks sur	240	6068
Phillips, Beard 2, R. Bennington sur	576	5962

*Failures; †Junked; ¶Million cu. ft. gas.

Anderson and Henderson Woodbine tests failures

Tyler, Texas.—Wildcat failures in the Woodbine were recorded by Anderson and Henderson counties the past week. Jas. H. Gardner et al's West 1, 2 miles southeast of Denson Springs and near the south line of Anderson County, entered the Woodbine series at 5711 feet and quit in water sand at 5747 feet. McElreath & Suggett, Incorporated, et al's Dean 1, 1 mile west of Athens, Henderson County, logged top of Woodbine at 4340 feet, and abandoned at 4650 feet.

Humble Oil & Refining Company et al's Horton-Dickson 1, second lower Trinity project for the east flank of the East Texas field, Gregg County, logged top of first anhydrite stringer at 5596 feet, and was drilling at 6450 feet.

Southeast producer alters Talco outlook

Talco, Texas.—The east end of the Talco field was given a 2150-foot southeast extension when Magnolia Petroleum Company's J. A. Chapman 3 pumped 210 barrels of pipe line oil from the Paluxy at 4250-4326 feet. It is located near the center of the company's 341½-acre lease, and slightly lower structurally than its Chapman 2, which failed to produce in the Paluxy and the Lower Trinity after drilling to 5661 feet. This deep failure indicated that the east trend of production was partially defined, but the new well alters the outlook.

Riverbed in K-M-A to be leased by state

The State Board for Mineral Development has called for bids to be opened September 20, at Austin, on two leases in the Big Wichita River at a point where the stream runs through the K-M-A field.

Only shallow sands on the two tracts offered are up for lease, as the G. W. Drilling Company has recently obtained a lease on the K-M-A sands which are producing in that area.

Hardin field order is issued

A maximum proration allowance of 15 acres to the well was approved for the Hardin field last week at a hearing before the Texas Railroad Commission. Laten Stanberry, chief supervisor of oil and gas for the commission, and V. E. Cottingham, director of production, agreed to approve such a plan.

Wasson hearing

A hearing to fix field rules for the Wasson pool in Gaines and Yoakum counties has been scheduled for September 16 at Austin, according to a notice issued last week by the Texas Railroad Commission.

Geologists planning busy mid-year meet at El Paso

The mid-year meeting of the American Association of Petroleum Geologists, scheduled to take place in El Paso, Texas, September 27 through October 2, under sponsorship of the West Texas Geological Society, promises to be an excellent one from three standpoints: technical, program, attendance, and field trips.

Ed. W. Owen of the oil division of L. H. Wentz, San Antonio, will head the program with an introductory paper that will cover the area and problems that will be discussed in detail throughout the remainder of the program. He will be followed by James Fitzgerald, Jr., and W. C. Fritz of the Skelly Oil Company, Midland, and E. Hazen Woods, Sinclair-Prairie Oil Company, Midland, and Robert I. Dickey, Stanolind Oil & Gas Company, Midland, who will present cross-sections of the Central Basin Platform.

Other authors and subjects, not in chronological order, scheduled to appear on the program, include the following:

H. G. Cheney (consulting geologist, Coleman, Texas): Geology of North-Central and Central Texas.

Louis V. Olson (American Smelting & Refining Company, El Paso): Aerial Photography for Geological Exploration.

Cary P. Butcher (Tide Water Associated Oil Company, Midland): The Guadalupe Mountains as They Look to the Aerial Geologist.

Ronald K. DeFord (Argo Oil Corporation, Midland), George D. Riggs and Neil H. Wills (consulting geologists, Carlsbad, New Mexico): Surface and Subsurface Formations, Eddy County, New Mexico.

George A. Kroenlein (consulting geologist, Lovington, New Mexico): Salt and Potash in the Upper Castile Formation of Southeast New Mexico.

Philip B. King (U. S. Geological Survey): Relation of Permian Sedimentation to Tectonics in the Guadalupe Mountain Region.

E. Russell Lloyd (consulting geologist, Midland): Theory of Reef Barriers.

Lincoln R. Page (University of Colorado, Boulder): Stratigraphy, Eastern Midland Basin, Texas.

Taylor Cole (University Lands, Midland): Notes on the Black Shale Basin of West Texas.

Frank E. Lewis (consulting geologist, Midland): Stratigraphy of the Upper and Middle Permian of West Texas and Eastern New Mexico.

John W. Skinner (Humble Oil & Refining Company, Midland): Upper Paleozoic Section of the Chinti Mountains, Presidio County, Texas.

E. H. Sellards (Bureau of Economic Geology, Austin): Early Paleozoic Formations in Texas.

Lloyd A. Nelson (College of Mines and Metallurgy, El Paso). Paleozoic Stratigraphy of the Franklin Mountains of West Texas.

Claude E. Needham (New Mexico School of Mines, Socorro): Correlation of the Pennsylvanian Rocks of New Mexico.

Morris A. Elms (Phillips Drilling Company, San Antonio): Volcanics of the Buck Hill Quadrangle, Brewster County, Texas.

W. D. Anderson and James R. Day (Amerada Petroleum Corporation, Midland): Monument Field, Lea County, Mexico.

H. G. Walter (The Texas Company, Hobbs, New Mexico): Vacuum Field, Lea County, New Mexico.

Sam C. Giesey and Frank F. Fulk (Stanolind Oil & Gas Company, Midland): North Cowden Field, Ector County, Texas.

E. H. Powers (Gulf Oil Corp., Midland): Sandhills Field, Crane County, Texas.

Shreveport.—Fourteen drilling permits were authorized last week by the Louisiana Conservation Commission of which 12 were in North Louisiana, divided among the following parishes: Caddo, 8; Claiborne, 1; Morehouse, 1; Ouachita, 1, and Webster, 1. The 2 in South Louisiana were in the following parishes: Cameron, 1, and St. Mary, 1.

Southwest Texas Fields

La Rosa well reveals productive sand body 85 feet thick. Kendall and Kimble counties have oil fields in prospect. San Antonio and Laredo areas get small new pumpers.

Corpus Christi.—Developing a sand body 83 feet thick, Coronado Oil Company's Mrs. B. D. Rooke 1, discovery well of a new zone in the La Rosa field, gives Refugio County promise of another large crude reserve. The well was being completed through perforations at 5902-5 feet late in the week and is expected to make a good producer.

The test is 7600 feet southeast of Rooke 2, discovery well of the pool, and a distillate producer in a 5300-foot sand. The outpost test, second to be drilled in the area, found the discovery zone at 5364-5420 feet, went ahead to open a second distillate sand at 5562-67 feet, then encountered the present zone at 5873 feet, the first 20 feet showing for distillate production. Oil saturation then followed to 5920 feet and salt water to 5960 feet. Casing was landed at 5927 feet and cemented.

This new sand discovery, believed to be in the upper Tomoconnor zone, definitely proves the area as a multiple-zone producer and places it in a position to receive a heavy exploration campaign. The regular Tomoconnor sand should be found around 6300 feet.

While the majority of the close-in acreage is included in the company's 3600-acre block, a number of companies hold tracts on the structure. Likewise, a wildcatting program is being commenced on the old Woodsboro or Bonnie View prospect to the east. Holland Oil Company et al's Peck 1, 5 miles from the discovery, was again rigged up after being abandoned several years ago. Perforations are to be made at 5320-40 feet in an effort to establish production. The Austin Corporation and J. W. Heard have commenced a 7000-foot test on the Hunsdon tract, Block E, 1 mile north of the Peck test.

Seaboard Drillers and Wallaca Morgan's M. F. Smith 1, Section 23, on an important location 4 miles northwest of Sinton, San Patricio County, has been abandoned at 5616 feet, while Illinois Petroleum Company's Wilson 1, George Morris Survey, 3 miles west of Sinton, is drilling below surface casing.

Deep Tests

Union Producing Company was still working with Minnie Brown 1, Agua Dulce deep test in Nueces County, which was at 10,792 feet. Seven-inch liner is to be run to bottom before drilling ahead in heaving shale. The county has several other interesting deep operations. The Texas Company has spudded Little 1, on Mustang Island, while Phillips Petroleum Company is rigging up Mastin 1, Section 146, 4 miles southwest of Baldwin field. The latter well is on a fault projected through the west side of the Saxet field. Seaboard Oil Corporation's J. C. Chapman 7, NW SE Section 41, 4300 feet southeast of the Chapman Ranch field, is drilling below surface casing. Carlos Oil Corporation's F. J. Smith 1, Survey 420, is searching for deeper sands in the Turkey Creek field, drilling near 7500 feet as the week closed.

Completion of two wildcats 12 miles apart is considered as possibly South Texas' largest strike of the year. See page 73.

H. H. Howell, discoverer of the Alice field's Vicksburg sand production, extended this pay in the Jim Wells County pool 2000 feet to the southwest with C. B. Stillwell 1-A. The test, in southeast corner of south 40 acres of north 62 acres of Block 63, topped the sand at 5274 feet, drilled in to approximately 5300 feet and was completing.

Magnolia Petroleum Company's Garcia 1, 1126 feet east of production in the Bandera field, Jim Wells County, was coring for the 6400-foot Jackson gas sand producing in the discovery well.

Kendall and Kimble counties have fields in prospect

San Antonio.—A section of the Edwards Plateau, dormant for years, may see a revival of interest and an exploratory program as a result of recent successes in Ordovician tests. Kendall and Kimble counties each have new oil fields in the making on known surface prospects.

Plateau Oil Company's Mrs. E. E. Bolt 1, Section 42, 2640 feet east and 660 feet south of the discovery well of the Junction area in Kimble County, cored lime, apparently Ellenberger, with oil show at 1420-35 feet, and was setting casing. This zone is believed to be the same as was found in the company's Anderson 1, which opened the pool. The Anderson well several weeks ago pumped water and about 20 barrels of 28.5 gravity crude per day from saturation at 1864-69 feet, casing having been landed at 1850 feet.

The company has two more wells active in the area, while Phillips Petroleum Company is drilling to the northwest. The outcome of the Bolt well and these tests will definitely bear out the possibilities of this structure.

In Kendall County, Millican and Norman's Willie Werner 1 was on pump, apparently opening the Sisterdale field. The test is in J. F. Torrey Survey 781, 65 feet north of Sterling et al's Werner 1, drilled several years ago. The Sterling test made several hundred barrels of crude from 900-foot Ellenberger limestone before being abandoned. The new operation topped the limestone at 910½ feet and drilled in to 912 feet, where an acid treatment of 1000 gallons was injected under 500 pounds pressure. The well is now on pump and is rated at upward of 60 barrels of crude per day, making a small amount of water, the content lessening with pumping. Several other tests are

SOUTH TEXAS Completions

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Bexar County—		
Tom & Caroline Owens, Henry Fest 1, Von Ormy	4	718
Shadrock Oil Company, Barragan 16, Von Ormy	5	680
Caldwell County—		
J. C. Bertrand, J. G. Hansen 1, Salt Flats	35	2725
North Millican, Trustee, Merriweather 2, Salt Flats	25	2731
Weigand Brothers, Trap Briscoe 3-A, Salt Flats	45	2718
Guadalupe County—		
Nick Marosis, Maierhofer 2, Peters sur	*	952
Elton McCabe et al, Sue Denman (1) 3, Darst Creek	125	2625
Yates Wilson 1, Darst Creek	†	2567
Maverick County—		
Wellington Oil Company, Chittim B-1, I&GN RR sur	*	2727
Medina County—		
A. A. Murrell, Fee 3, Chicon Lake	8	373

CORPUS CHRISTI DISTRICT

Aransas County—		
Collins & McAlister Coal Company, Scrivner 1, McCampbell	750	7117
Shasta Oil Company, Fee-Brahany 1, McCampbell	600	7239
Bee County—		
Atlantic Refining Co., Courtney 1, Kerr sur	65	3665
Hidalgo County—		
Dean-Davis-Bolling, Guerra 2, Samfordyce	500	2860
Jim Wells County—		
Magnolia Pet. Co., Martin Heirs 1, Yaca League	*	6718
Montour & Lewis, Lemond 1, Alice	650	5314
Pitkin & Goldston, Lindsey & Reed 1, Alice	600	5322
Nueces County—		
Magnolia, Cryer 2, Saxet	*	lcn.
Renwar Oil Corp., Harrington 10, Turkey Creek	250	3872
Seaboard Oil Corp., Shaffer 12, Luby	500	5066
Stanolind Oil & Gas Co., Kampfhenkel 2, Clara Driscoll	250	5330
Refugio County—		
Copano Oil Co., Tom O'Connor 12-B, Tomoconnor	1250	5942
Quintana Pet. Co., Bauer 8, Tomoconnor	2200	5925
San Patricio County—		
Plymouth Oil Co., Coale, et al D-2, E. White Point	500	5657
Victoria County—		
Geo. Echols, Lander 4-B, Heyser	350	5609
Magnolia, Lander 9, Heyser	600	5582
Stanolind, Vandenberge & Hill 3, NE Placedo	450	6370

LAREDO DISTRICT

Duval County—		
Argo Oil Corp., Bolte 4, N. Sweden	250	5411
Phillip Haynes & Conners, Fitzsimmons 1, Fitzsimmons	*	lcn.
Hiawatha, Parr 16, N. Sweden	625	4754
Magnolia, Duval County Ranch 6, (201), Eagle Hill	*	2708
Duval County Ranch 8 (291), Casa Blanca	57	1190
H. J. Porter, Fitzsimmons 1-B, Fitzsimmons	400	4655
Porter & Wheelock & Collins, Fitzsimmons 1, Fitzsimmons	500	4388
V. G. Schimmel et al, Foster 2, Eagle Hill	25	1532
Jim Hogg County—		
Darby Pet. Corp., Holbein B-5, Las Animas	30	1890
McMullen County—		
Bruce Allbright et al, Nueces Land & Livestock 1, sur 119, Munson	100	1213
Marion Prod. Co., Lark 5, Callihan	12	1056
Starr County—		
Hagan & Stewart Oil Co., Salinas 1, Sacatosa Grant	*	2020
J. R. B. Moore & Massingill, Hinojosa 1, Barbacoas	*	2730
Zapata County—		
Gilcrease Oil Co., Haynes 27-B, Comitas	*	1200
James P. Nash, Haynes 32-A, Comitas	35	1152
The Texas Company, Jennings 119, Escobas	15	1299

*Failures; †Junked; ‡Million cu. ft. gas.

drilling on this general trend and are considered to be on the same structure.

In the southwestern portion of Kinney County and at the north end of the Chittim anticline, a well being drilled for water on the Wardlow ranch encountered oil showings in lime at 1130-1290 feet and casing was run for a test. The well is near acreage under lease to Magnolia Petroleum Company. The test had not been closely watched due to the fact that it was being sunk for water, hence location and details are not available.

Wellington Oil Company and Humble Oil & Refining Company have commenced the first of two tests to be drilled on the Indio Ranch, Antonio Rivas Grant, in southern Maverick County. There are approximately 23,000 acres in the block, and 2 wells are to be drilled, first 3 miles from the Rio Grande and second 3 miles farther east. Wellington Oil Company's Chittim 1-B, on the Chittim anticline and in Maverick County, has been temporarily abandoned at 2727 feet in chalk. It will be carried deeper at a later date.

New producing spot on Alta Vista Fault

San Antonio.—A new producing spot along the Alta Vista fault in Bexar County was being provided in the Taylor marl by Philtop Oil & Gas Company's R. W. Patton 3, swabbing considerable 15 gravity black oil from 1108-11 feet. The test makes small heads of crude and is estimated at 40 to 60 barrels per day. It is expected to be completed on pump.

This operation is 4500 feet northeast of Luling Oil & Gas Company's Russell, completed for a 40-barrel pumping well at the same level, and is southwest of the old Alta Vista field.

Small pumper opens new field in McMullen County

Laredo.—Bruce Albright and Bishop Oil Company's Nueces Land & Live Stock Company 1, NW NE SW Section 119, has been completed pumping 2½ barrels of oil per hour from Mirando sand at 1202-13 feet, to open the Munson field of southwestern McMullen County. The well is showing considerable gas, requiring a gas anchor.

As a result of the discovery, two offsets are being drilled and several outposts have been commenced or locations staked.

Another shallow field receiving attention is the Hoffman area, Duval County. A series of tests have extended this field's production materially to the southwest with a tie-in to the South Hoffman field being definitely established.

Pumping 40 barrels

Beeville.—Atlantic Refining Company's J. L. Courtney 1, discovery well of the Tulsita field, Bee County, was completed as a small pumping producer at 3658-65 feet. The well, located in the George Kerr Survey, is estimated at 40 barrels of 44-gravity crude per day. The well shows a shut-in pressure of about 30 pounds, but builds up and heads by agitation.

Texas Gulf Coast

Matagorda County wildcat shows production possibilities.

New sand productive in Clinton field, Harris County.

Propose Fairbanks extension as new and distinct field.

Houston.—North of Markham, Matagorda County, Ohio Oil Company cored broken formations in W. P. Cornelues 1, P. C. Yarborough Survey, which showed oil, gas and salt water last week and was setting seven-inch casing for a production test. Show was in the lower Frio at 7744 feet. Casing will be set to bottom and perforated at the different shows.

Cornelues 1 encountered a gas sand at 7297 feet and from 7307 to 7317 feet was sand and shale with an odor of oil; from 7317 to 7322 feet was salt water sand; from 7717 to 7727 feet was sand showing gas; from 7727 to 7732 feet, 2½ feet of sand showing oil was cored and from 7732 to 7742 feet was 7 feet of sand showing oil and the bottom 2 feet was salt water. Operators may take another 20-foot core and then set casing.

New Sand at Clinton

A new Miocene sand was discovered at Clinton, Harris County, last week by Stanolind Oil & Gas Company. Sanders 2, Reels & Trobough Survey, cored sand showing oil from 4050 to 4062 feet. The hole was carried to 4489 feet in a salt water sand, topped at 4470 feet. After setting casing it was perforated from 4043 to 4052 feet with 54 shots. The well came in flowing 272 barrels of pipe line oil daily through ¼-inch choke. Tubing pressure was 550 pounds; casing pressure 375 pounds. On the east side of Clinton, Stanolind Oil & Gas Company's Caywood 1 was abandoned at 4672 feet in salt water sand. It was topped at 4659 feet.

On the northeast side at Fairbanks, Harris County, Williams & Thompson's Kraemer 2, G. S. Reid Survey, was abandoned at 6844 feet in salt water sand. A gas sand was cored from 6778 to 6790 feet.

Stanolind Oil & Gas Company has asked that the Texas Railroad Commission designate as an area separate from Fairbanks the vicinity of Look 1, S. Lewis Survey. Site of this well is 4000 feet from production at Fairbanks and its producing depth (6956 feet) is 100 feet lower than the regular level in that field. Look 1 made 348 barrels of fluid through ¼-inch choke, 9 percent salt water; tubing pressure 1750 pounds and casing pressure 200 pounds.

Continental Oil Company and McAlester Fuel Oil Company has made location for another wildcat in the Ogburn area in Harris County. It is one mile northwest of Killam's Sweeney Estate, which was abandoned in Yegua formation.

A potential test on West Production Company's Fee 1-A, 6000 feet southeast of the discovery well at Clear Lake, McKinstry Survey, Harris County, showed 605 barrels of 26.2-gravity oil daily through ¼-inch choke. Tubing pressure was 825 pounds and casing pressure was 1500 pounds. The hole was drilled to 6184 feet and logged sands showing oil from 5895 to 5979 feet.

Jack Frazier is preparing to test a new sand at Eureka, Harris County, in L. Lackner 1, H. Reinerman Survey. Drilled to 9038 feet, being the deepest in the field, it logged sand showing gas and distillate from 8074 to 8092 feet. Casing was set at 8328 feet. A drill-stem test of the sand showed 120 feet of 50-gravity distillate.

West of production at Eureka, Tide Water Associated Oil Company completed Lackner 2 after perforating casing with 12 shots from 7711 to 7715 feet. It made 594 barrels daily through ¼-inch choke.

At League City, Galveston County, Midwest Royalty Company made location for Louis Lobit 1, 522 feet south

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Batson—		
C. F. Yust, Heywood 41	36	490
Brenham—		
Freeport Sulphur, Sudenbausen 3	*	1365
Bryan Mound—		
Texas Co., Freeport Sulphur 5	*	4021
Clear Lake—		
West Prod., Fee 1-A	605	6184
Clinton—		
Stanolind, Caywood 1	*	4672
Sanders 2	272	4062
Danbury—		
Rowan Drlg. Co., Jamison 8-A	99	1970
Conroe—		
Brown-Wheeler, Hooper 9	570	5138
Dickinson—		
Humble, Fream 3	488	8183
Eureka—		
Tide Water, Lackner 2	594	7715
Fairbanks—		
Stanolind, Look 1	348	6956
Williams-Thompson, Kraemer 2	*	6864
Friendswood—		
Humble, Herman Hospital 3	617	6047
Wood 1	598	6044
Hardin—		
Gulf, Tullas 3	496	7605
Woodley Pet. Co., Davis 1	617	7636
Hastings—		
Humble, J. E. Alexander 9	616	6050
Stanolind, Remley 6	624	6080
Sneed 15	612	6080
Hitchcock—		
M. Stewart, Fee 4	108	5137
Humble—		
Texas Co., Landside 274	*	1509
Manvel—		
R. H. Deering, Anderson 1	35	4077
Moss Bluff—		
W. T. Grant-G. T. Miller, Sherman 1	*	1561
Tomball—		
Humble, Schultz B-2	436	5617
Texas Co., Doughtis 3	450	5566
West Columbia—		
Frost-Dunnam, Parker 2-A	566	5357
Galveston County—		
Sun, Cade 1, Bolivar prospect, A. Dickson sur	*	8805
Montgomery County—		
W. L. Todd, Martin 1, s of Montgomery, Z. Landrum sur	*	4215

*Failures; †Junked; ¶Million cu. ft. gas.

of the north line and 416 feet west of the east line of Lot A, Block 6, Perry and Austin Survey.

At Boliver, Galveston County, Sun Oil Company abandoned Cade 1, A. Dickson Survey, at 8805 feet in heaving shale.

Southeast of production at Dickinson, Galveston County, Humble Oil & Refining Company completed Fream 3, J. Sellers Survey, flowing 488 barrels daily through a ¼-inch choke after casing was perforated with 10 shots from 8167 to 8172 feet. Tubing pressure was 800 pounds.

On the southeast flank at West Columbia, Brazoria County, General Crude Oil Company announced location for Campbell Estate 1, 159 feet north of the south line and 150 feet west of the east line of a 15-acre tract in the J. H. Bell Survey.

Mike Hogg's Fee 3 on the flank of West Columbia was completed at the end of the week flowing 13 barrels of pipe line oil per hour through 3/16-inch choke with 1300 pounds pressure on the tubing, from Frio sands at 5413 to 5421 feet.

On the flank of Stratton Ridge, Brazoria County, Sterling Oil & Refining Company's Kramer 1, T. W. Grayson Survey, was drilling in salt at 5050 feet at the end of the week after topping the formation at 4628 feet.

Two new wildcat locations were made in Montgomery County last week and another wildcat was abandoned in the county. Frazier and Bunte made location for Chase National Bank 1, 10 miles southwest of Conroe and 466 feet south of the north line and 1500 feet west of the east line of a 1476-acre tract in the D. Garrett Survey. Four miles northeast of New Caney, C. G. K. M. Oil Company announced location for Floyd Oil Company 1, 660 feet east of the west line and 330 feet north of the south line of a 40-acre tract in W. C. R. R. Section 11, Abstract 646. One mile south of the town of Montgomery, W. L. Todd's Martin 1, Z. Landrum Survey, was plugged at 4215 feet after coring salt water sand from 3970 to 3980 feet.

North of Orange, Orange County, Sun Oil Company has spudded Lutcher-Moore Lumber Company 1 and set surface casing. This new wildcat is 836 feet north of the south line and 928 feet west of the east line of an 89.93-acre tract, being Lot 19 in the House & Terry Subdivision of the B. Johnson Survey, Abstract 119.

On the west flank at Orange, Red Bank Oil Company's Michel 1, W. Dyson Survey, was waiting on cement to set after squeezing cement through perforations at 5564 to 5574 feet. A test showed oil and gas and operators were forced to kill. The same operator's Duhon 1 was waiting on cement to set before making a production test. The well cored sand showing oil from 5740 to 5746 feet. Casing was set on top of the oil sand. At Green's Lake, Galveston County, Sun Oil Company made a production test on Houston Farms Development Company 2 and it showed gas and a slight show of distillate. Casing was perforated from 6808 to 6818 feet. It came in making gas and then started making sand. The flow lines began to freeze after pressure rose to 2800 pounds on the casing and 1600 pounds on the tubing. The well will be killed and plugged back up the hole for another test.

South Louisiana

Chacahoula is new salt dome oil field in Lafourche Parish.

Making test of new sand showing at Jeanerette field.

Lake Charles.—A new oil field was discovered in South Louisiana September 5 by Sun Oil Company, the first for the operators in the territory. Dibert, Stark & Brown 1, Chacahoula salt dome, Section 70-15s-15e, Lafourche Parish, came in flowing 600 barrels of 37.2 gravity pipe line oil daily through ¼-inch choke from Miocene at 7253 feet. Tubing pressure was 650 and casing pressure 750 pounds. Hole was drilled to 7253 feet in oil sand topped at 7240 feet. A string of 9⅝-inch casing with 10 feet of screen was set on bottom. Cement plugs were drilled and washing operations were in progress Labor Day.

At South Houma, Terrebonne Parish, Shell Petroleum Corporation continues to log broken formations with shows of oil and gas in Peters 1, Section 73-18s-18e. The hole was bottomed at 10,084 feet in shale last week and cores at 9917 feet showed oil. A drill-stem test from 9870 to 9880 feet showed 24 stands of salty mud and 64 stands of salt water through ¼-inch chokes in 15 minutes. Working pressure was 17 pounds.

Convent Failure

Continental Oil Company's first failure at Convent, St. James Parish, is Colonial Sugars 1, Section 46-12s-5e, which logged salt at 9525 feet and was plugged.

Gulf Oil Corporation recovered salt water again in Quarantine Bay QQ 4 at Quarantine Bay, Plaquemines Parish, in a new sand. Casing was perforated with 12 holes from 9685 to 9690 feet and a drill-stem test showed salt water. The perforations have been squeezed and the cement has been drilled out to 9839 feet for another test. This hole was drilled to 11,014 feet in shale and plugged back to 10,050 feet. A test at 10,070 feet showed salt water. The company's Orleans Levee Board 1-A, Section 18-19s-17e, was drilling in shale after coring from 8138 to 8146 feet and recovering nothing but brittle shale. The established producing horizon at Quarantine Bay is from 8134 to 8202 feet.

Humble Oil & Refining Company is drilling deeper on Orleans Levee Board 36 at Potash in Plaquemines Parish. The semi-wildcat is bottomed at 9870 feet in shale at the end of the week. Several broken shows have been logged in this test, the last being from sections between 9645 to 9860 feet.

The Texas Company has made location for another wildcat in the Golden Meadows area of Lafourche Parish, State Catfish Lake 1, SE 77-19s-21e. The company's La Terre 1 is drilling in hard sand at 9874 feet.

The Texas Company cored a new sand in Caillou Island State 53 at Caillou Island, Section 18-23s-23e, Terrebonne Parish, and was drilling ahead at the end of the week. The new sand was logged from 5294 to 5319 feet. Sands showing oil were also logged from 4916 to 4944 feet, from 4852 to 4872 feet, and from 5178 to 5216 feet.

After drilling to 10,752 feet, Shell Petroleum Corporation plugged Kuntz 1, south of production at Gibson, Section 40-17s-15e, back to 9178 feet and set 5-inch casing. It was perforated from 9093 to 9095 feet and showed 25 barrels of salt water in 15 minutes through ¼-inch chokes. Working pressure was 28 pounds. The perforations have been squeezed before perforating from 8880 to 8885 feet for another test.

At Raceland, Lafourche Parish, Amerada Petroleum Corporation and Louisiana Land & Exploration's deep test, South Coast Corporation 2, Section 34-15s-19e, was fishing for drill collars at the end of the week after testing liner at 12,164 feet. Preparations were being made to drill cement plugs after setting 4¾-inch casing from 10,189 to 12,164 feet for a production test when the equipment was lost in the hole. A test will be made this week.

Amerada Petroleum Corporation and Louisiana Land & Exploration Company's Gheens 1, Bayou Des Allemands field, Lafourche Parish, was coring in shale below 7878 feet last week after coring in sand and shale with oil and gas shows. The bottom portion of the show had a salty taste.

Cored Oil Sand

On the flank of Valentine, Lafourche Parish, William Helis has cored oil sands in Valentine Sugars 3 and has set casing for a production test. Oil

SOUTH LOUISIANA Completions

Company, Well and Location	Init Prod. Bbls.	Depth
Bancroft—		
Republic, Columbia Land & Timber Co. 1	504	7326
Cameron Meadows—		
Humble, Cameron Meadows 22	75	3797
Charenton—		
Pan American, Lawes Realty Co. 9	244	6772
Convent—		
Continental, Colonial Sugars 1	*	9525
Darrow—		
Humble, Community B-1	*	7944
Jennings—		
Frank W. Bennett, Freeman & Garden 1	360	5707
Stanolind, Crowley Oil Co., 112	*	7079
Superior, Iowa Jennings 7	*	6395
New Iberia—		
Texas Co., Schwing 2	424	5029
Valentine—		
Pan American, Community B-2	675	9325
Harange Plantation 18	611	4619
Villa Platte—		
Continental, P. McDaniel 2	290	8997
Vinton—		
J. V. Reddick, Vincent 3	*	3000
West Gueydan—		
Magnolia, H. Reese 1	*	7644
St. Martin—		
Shell, Jeanerette Lbr. Co. 1, West Lake Verrett prospect, 14-14s-12e	*	10,550

*Failures; †Junked; ¶Million cu. ft. gas.

sands were encountered from 7372 to 7387 feet. The hole is bottomed at 7403 feet, and 7-inch casing was set at 7374 feet.

At Darrow dome, Ascension Parish, Southern Drillers Inc.'s A. Bearteau 1, Section 55-10s-2e, was preparing to make a production test after perforating casing from 6366 to 6370 feet with 12 holes. The past week casing was perforated from 7700 to 7706 feet with 10 holes, and a drill-stem test showed 6000 feet of salt water and sand through ¼-inch choke. Humble Oil & Refining Company abandoned Community 1-B at Darrow after trying to open a new sand for the field at 4360 feet.

Three wells were completed at Jennings, Acadia Parish, last week. On the north side of the field, Stanolind Oil & Gas Company abandoned Crowley Oil & Mineral Company 1, Section 48-9s-2w, at 7079 feet after drill pipe was stuck. Frank W. Bennett's Freeman & Garden 1, Section 45-9s-2w, made 15 barrels of 35.6 gravity pipe line oil per hour through ¼-inch choke at 5230 to 5270 feet. Superior Oil Company's Jennings-Heywood 7, Section 41-9s-2w, was abandoned at 6395 feet in salt topped at 4390 feet. Shell Petroleum Corporation's Community 4, Section 40-9s-2w, was coring in sand showing oil at 6407 feet after topping the pay horizon at 6342 feet. Last week the operators made a drill-stem test from 6328 to 6342 feet and recovered 15 stands of gas-cut mud.

Shell Petroleum Corporation abandoned Jeanerette Lumber Company 1 on the West Lake Verrett prospect in St. Martin Parish. It quit at 6955 feet after making a drill-stem test which showed salt water. The wildcat was originally drilled to 10,550 feet where drill pipe was stuck. The hole was plugged back and a series of tests were made which showed salt water. The operators have made location for Hazel Burdin 1 in Section 15-14s-12e.

At Charenton, St. Mary Parish, Pan American Production Company completed its first well in the 6762-foot sand which was discovered by Fifteen Oil Company some time ago. Laws Realty Company 9, Section 31-13s-10e, made 244 barrels of 37 gravity pipe line oil daily through ¼-inch choke with a tubing pressure of 2300 pounds and a casing pressure of 2150 pounds.

New Sand at Jeanerette

At Jeanerette, St. Mary's Parish, Herton Oil Company is preparing to make a drill-stem test in a new sand. Roanes Sugars A-1, Section 38-13s-9e, was drilled to 10,778 feet in shale. Electrical log was run and then a short string of 5-inch casing was set at 10,304 feet. Cement was drilled out to 10,614 feet. Casing perforated with 46 holes from 10,598 to 10,612 feet.

About 1320 feet west of the discovery well at Grand Bay, Plaquemines Parish, Gulf Oil Corporation's Grand Prairie Levee District 2-A, Section 48-20s-16e, made a drill-stem test last week from 6133 to 6144 feet and recovered 360 feet of pipe line oil and no pressure after the testing tool slipped. The test was made in 10 minutes. The hole is bottomed at 6168 feet.

At Lake Long, Lafourche Parish, Fohs Oil Company has logged oil sand in State 5 at 9360 feet, and was drilling in shale at 9480 feet at the end of the week seeking a deeper sand.

North Louisiana Fields

Shreveport's first townlot location is on 40-acre unit. Lisbon production again extended in two directions.

Shreveport.—Three tests were drilling, two others were moving in materials, and four new locations were staked last week in the new Shreveport field, Caddo Parish, where a basal Glen Rose lime oil well was completed last July 15. One of the new locations made is inside the city limits of Shreveport, the first townlot location made since development of the new area began. Of the new locations staked, permits have been applied for but had not been granted Thursday.

The new locations are: Pike Hall and M. K. Smith's Fee 1 (11.5-acre tract), 2840 feet north and 50 feet west SEc 5-17n-14w; W. H. (Bill) Rowe and associates' Woolworth 1, located 1650 feet north and 660 feet east SWc 20-18n-14w; M. S. Dreyfuss 1, located 2223 feet south and 950 feet east NWc 20-18n-14w; and Dr. R. O. Carter and associates' City Park Addition 1, NE SE 34-18n-14w, a townlot location, but on a 40-acre tract that has been unitized.

Tests at which material is being moved in are J. T. Driscoll, Inc.'s Woolworth 1, SE SE 19-18n-14w, and C. D. Loe's Lionel Meyer 1, Section 33-18n-14w. Tests drilling are: F. W. Martin and Superior Oil Corporation's Querbes 1, Section 37-17n-13w, drilling below 2510 feet; R. L. Bauman's Slattery 1, Section 35-18n-14w, drilling below surface casing; and R. E. Allison's Ellerbe 2, NE NE 28-18n-14w, west offset to Allison's Ellerbe 1, SW NW 27-18n-14w, the discovery well, drilling at 2070 feet.

The largest lease transaction so far recorded in property inside the city limits for oil exploration was consummated last week when Rodessa Oil & Refining Company (M. J. Grogan) leased 120 acres in SW Section 34-18n-14w, with a drilling proviso to drill immediate tests on each of the three 40-acre tracts. The acreage is between the Shreveport municipal water plant and a large municipally-owned golf course.

Between the new Shreveport field and the old shallow Pine Island field, Caddo Parish, and centering around Section 9-19n-15w, Jack Clements has assembled a block for a proposed 7500-foot test.

In Bienville Parish, Producers Oil and Gas Company made location for a 3000-foot test, Graves & Thomas 1, SW SE 23-15n-10w, on a wildcat block of 5000 acres on which one test recently was drilled without success to the Glen Rose lime in Section 9-15n-10w. Gulf Refining Company continues to add to the recent leases it has acquired around Gilliam, Caddo Parish, having recently acquired several hundred acres more in Townships 21 and 22 north, Ranges 14 and 15 west.

Lisbon Spread Two Ways

The Lisbon field was extended ¼-mile in two directions last week, to the south and to the southwest. The south outpost completed was Harry Fotiades' C. S. Rodgers 2, SW NW 13-20n-5w, completed after acidization, flowing 48 barrels per hour but later gauging 267 barrels in 24 hours through 20/64-inch choke. It logged 13 feet of saturated basal Glen Rose lime. The same distance southwest of production the same operator's T. H. Loyd 1, SE SE 10-20n-5w, logged 14 feet of saturation, and was completed without acid flowing 30 barrels per hour.

Magnolia Petroleum Company's Pardee C-1, NE NW NE 17-23n-11w, Webster Parish, geophysical prospect north of the shallow Cartersville field, swabbed dry after showing some oil when tested in basal Glen Rose lime at 6025 feet and will be deepened to the original goal of 8500 feet.

Two and one half miles northwest of a lone Paluxy sand producer at the 4200-foot level in Blue Lake (West Zwolle) field, Sabine Parish, Zwolle Syndicate's (L. M. Moffitt) Mansfield Hardwood 1, NE NE 8-7n-14w, swabbed dry at 4325 feet and will be acidized. Seven-inch casing was cemented at 3830 feet and several showings were logged between that level and bottom of the hole.

G. H. Collins and associates' Joyner 2, SW NE 28-11n-12w, DeSoto Parish wildcat, tested salt water at 3001 feet and plugged back to 2978 feet where it tested salt water again. It is waiting on orders. Continental Oil Company's Singer Manufacturing Company 1, NE NW 3-15n-11e, Madison Parish, which logged top of chalk at 650 feet, base of chalk at 2227 feet and logged igneous rock from 2227 feet to 2508 feet, was drilling shale at 3816 feet; elevation is 82 feet. It is a geophysical prospect.

Three miles southwest of shallow chalk production in the old Zwolle field, Sabine Parish, Major Oil Company's Loring 1, SE SW 21-7n-13w, showed some oil when tested in the chalk at 2330 feet but will be deepened to first planned depth of 4500 feet in search of Paluxy production.

Plugging back to 40 feet enabled North American Consolidated Oil Company to shut off a showing of salt

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo (Pine Island)—		
Midfield Oil Co., Muslaw 7, 6-20-15	10	1560
Nat Wiseman, Stiles 4, 27-21-15...	30	1035
Claiborne (Lisbon)—		
Harry Fotiades, C. S. Rodgers 2, 13-20-5	267	5339
T. H. Loyd 1, 10-20-5.....	720	5335
Morehouse (Monroe)—		
Interstate Nat. Gas Co., Fee 86, 22-21n-4e	¶5	2164
Fee 87, 21-21n-4e	¶8	2177
Webster (Cotton Valley)—		
North American Cons. Oil Co., Burrow 1, 21-21n-10w	660	8725

•Failures; †Junked; ¶Million cu. ft. gas.

water and successfully complete W. M. Burrow 1, C NE NW 21-21n-10w, as the third crude oil producing well in the lower Marine horizon at Cotton Valley. The well was averaging 33 barrels per hour through ½-inch choke following 27.5 barrels per hour when first recompleted, through same sized choke. It is producing from the "E" or Bodcaw horizon of the field, being on the northwest flank.

H. L. Hunt's Babb 8, C SW SW 13-21n-10w, has gone below any depth previously reached at Cotton Valley, last week being at 8963 feet and drilling ahead.

Arkansas Fields

Oil showing in Nacatoch in Nevada County test.

El Dorado, Ark.—Possibility of the opening of a new shallow Nacatoch oil producing area in Nevada County, 6 miles north of the Permian lime oil area near Buckner, Columbia County, appeared last week as Texas Canadian Oil Company's Stocks 1, C NW SE 9-15-22, after drilling to 3615 feet, was plugged back to the Nacatoch level where saturation had been logged from 1178 to 1211 feet, and the well was tested with some oil showing; 9⅝-inch casing had been set at 1378 feet.

Although a test ½ mile east of the discovery well and lone producer at Magnolia, Columbia County, was abandoned as a dry hole, in the same district, about the same distance southeast of the discovery well, another test gave indications of producing from the Permian.

The first failure chalked up against Magnolia was Petroleum Finance Company's (Leon Russ) Baker 1, SW NW 13-17-20, which was abandoned at 7775 feet without picking up any saturation in the Permian lime. The test checked low.

The well that may produce to the southeast is Grady Vaughn's Garrett 1, NE SE 14-17-20, which after logging saturation in the Permian lime, approximately 90 feet higher than the discovery well, set 7-inch casing. Total depth is 7553 feet. Location is on a 92-acre "farm-out" by Shell Petroleum Corporation to Vaughn. East of Petroleum Finance Company's dry hole, Atlantic Refining Company's Baker 1, SE NW 13-17-20, cored ahead below 7740 feet, checking low as is the same company's Harrington 1, SW NW 14-17-20, ½ mile west of the discovery well, which was completed by Kerr-Lynn Oil Company and later acquired by Atlantic Refining Company.

At Village, another Permian lime oil field in Columbia County, Standard Oil Company of Louisiana's Tina Crumpler 1, C SW NW 15-17-19, which showed salt water when the Permian lime was tested, along with considerable oil, arranged to fish for circulating jars. The well had milled from 7409 to 7412 feet, and the circulating jars went down to 7421 feet.

In Columbia and Union counties, northwest of Schuler production, Standard Oil Company of Louisiana's block around Section 5-18-18 is being filled in. In Union County, Gene Goff leased over 700 acres around Sections 4-19-14 and 34-18-14.

Illinois Developments

Beecher City field extended 5½ miles by Stein well. Saturation in stray sand in Fayette County outpost.

Olney, Ill.—A 5½-mile extension to Beecher City field of Fayette County and extensions in two directions to the rapidly growing Lake Centralia field of Marion County highlighted Illinois oil activity during the past week. In Richland County, Pure Oil Company was testing Weiler sand saturation in a wildcat, but will probably drill the well to the lower McClosky, regardless of the outcome.

Henry Rosenthal & J. W. Carter's C. Washburn 1, Section 30-6n-3e, Wheatland Township, cored 22 feet of broken Stein sand topped at 1600 feet to make the north and south length of the Eastern Fayette County field 18 miles. The field, now extending in four townships, Louden, Sefton and Avena previously having producers, is 4½ miles wide at its widest point—in Louden Township. It includes 100 producing wells and 85 drilling operations. Production is from the Stein and Benoist sands, with several twin wells producing from both formations.

Oil, Incorporated's Blurton 1, Section 32-8n-3e, one-half mile from production in this field, encountered a gas pocket at 1570 feet estimated as being capable of producing between 2,500,000 and 4,500,000 cubic feet daily. The well was being cleaned to determine its oil production, indications being that it will be one of the heaviest producers of the field. The Benoist was topped at 1546 feet.

Southeast Outpost Shows Also

Wyant & Pray's Buckmaster 1, Section 35-8n-3e, 1½ miles southeast of production in the Beecher City field, encountered a 22½-foot saturation in a

ARKANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Columbia (Magnolia)—		
Pet. Finance Co., Baker 1, 13-17-20	*	7775
Cleveland (Wildcat)—		
Allaun, Tr., Moore 1, 34-9s-10w...	*	2915
Union (Schuler)—		
Lion, Marvin 2, 7-18-17.....1680		7692
First National Bank 1, 17-18-17..1680		7690
Sewell 1, 18-18-17 1800		7608

*Failures; †Junked; ¶Million cu. ft. gas.

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stray sand after the Stein was found to be dry. The saturation was topped at 1611½ feet, and the well is believed capable of yielding 300 barrels. Two 3000-barrel tanks at Illinois Pipe Line Company's station at Brownstown are being constructed by Pray, who plans to lay a four-inch pipe line from the Buckmaster lease in Louden Township and the Ferguson lease in Sefton Township to the station. He has four good wells on the Ferguson lease, from which production is now being trucked to St. Elmo for shipment by tank car.

Jones Drilling Company's Rogers 1, Section 17-8n-3e, Louden Township, a half mile west of Carter Oil Company's producing H. Lilly lease, was abandoned as dry at 1639 feet. Formations were about 100 feet lower than at the Lilly lease, where production is obtained from both the Stein and Benoist sands.

ILLINOIS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Bond County—		
John Farrelly, Kyle 1	*	1327
Clay County—		
Pure, Smith 1A	360	3001
Smith 2A	355	3075
Moseley 3A	35	3060
Coles County—		
Illinois Oil Developers (Kingwood Oil Co.), Tomberlin 1	*	3536
Fayette County —		
Wisenant, Lilly 2	380	1580
Brown et al, Hopper 1	250	1530
Paul Doran, McCan 1	250	1550
W. B. Johnson, Goetting 2	200	1600
Carter, Main 2	170	....
Blomgren et al, Owens 1	80	1541
Jarvis Bros., Walker 1	75	1572
Jasper County—		
Continental, Eveland 1	*	3210
Jefferson County—		
Carter, Foster 2	431	1957
Crosby & Gill, Fitzgerald 1	*	1840
Macon County—		
Sun, Powers 1	*	2937
Marion County—		
Texas Co., Williams 4	720	1695
Williams 1	319	1690
Reed 1	205	1698
Lain et al, Dempsey 1	1000	1774
J. W. Menhoff, Ill. Cent. 2	300	1371
Fairhope Oil Co., Mentler 1	100	1392
J. R. Olstrom, Cramer 1	100	1377
Boyce & Welch, Bublis 1	75	1391
Hill & Jones, Marshall 1	63	1391
Adams O&G Co., Village of Patoka 2	30	1449
J. O. Gill, Gibson 1	*	1820
Richland County—		
Fortney O&G Co., Miller 1	780	3079
Pyramid Pet. Corp., Sly 2	100	3038
Wicklund Dev. Co., Van Matre 1	*	3150
Sangamon County —		
Wittlinger et al, King 1	*	1385

*Failures; †Junked; ¶Million cu. ft. gas.

Double Extension

Carroll & Nichols' Young School 1, Section 20-2n-2e, topped the Benoist sand at 1733 feet, cored to 1740½ feet and set casing to the top of the saturation. The test promises a mile northerly extension to the Lake Centralia field of Marion County, opened several weeks ago by The Texas Company's Tate 1. Opening of the school was delayed a week by officials to permit completion of the test. E. Self et al's McRoberts 1, Section 32-2n-2e, brought in recently as the field's north outpost and a mile south of the Young School 1, made 130 barrels in 12 hours on a test last week after it had been flowing into storage for several days.

H. H. Weinert's Foster 1, Section 7-1n-2e, 2 miles west and slightly north of Mammoth Producers & Refiners' Bachman 1, cored 21 feet of saturation topped at 1779 feet. About 300 feet northeast of the Foster 1, W. S. Tatum et al's B. M. English 1, Section 8-1n-2e, recovered an excellent saturation. Both wells are in the Benoist sand with casing cemented to the top of the producing formation.

The Texas Company, principal operator in this field, had 2 tests testing, 3 with casing cemented to saturation, 2 running casing, 9 drilling, 3 rigging, 2 derricks, 1 preparing location and 3 locations announced for immediate drilling—a total of 25 operations.

Wildcat Shows

In Richland County, Pure Oil Company's F. Wakefield 1, Section 26-4n-9e, wildcat in north Noble Township, cored into some Weiler saturation at 2592 feet. The oil showing was described as sufficient to make a well at this level if additional drilling shows the lower McClosky to be dry. The well is running about 40 to 50 feet higher than producers in the Noble field several miles south.

Two wildcat tests were abandoned last week: In Coles County, Illinois Oil Developers' (Kingwood Oil Company) Tomberlin 1, Section 21-11n-10e, Hutton Township, stopped at 3536 feet. In Franklin County, Amerada Petroleum Company's Ziegler Coal Company 1, Section 14-7s-1e, Six Mile Township, was plugged at 3039 feet.

Several other wildcats in scattered parts of the Basin were attracting more than their share of attention. Leach Bros.' A. Lee 1, Section 11-1s-10e, Albion Township, Edwards County, completed a month's fishing job and resumed drilling from 3370 feet towards the St. Louis lime, expected at 3700-3800 feet. This well, drilled with a crude home-made outfit, is the first to encounter a McClosky oil show in Edwards County. Salt water intruded in that formation, however, and the well is being carried deeper.

Eason Oil Company's Bowlin 1, Vergennes Township, only active operation in Jackson County, was drilling toward the McClosky after finding the Stein and Benoist sands dry. Paul S. Ache announced a location for a McClosky lime test in Section 17-12n-4e, near Shelbyville, in Shelby County, which will be 18 miles north of Carter Oil Company's activity in the Louden Township field of Fayette County. The wildcat will be on a seismograph high and will be drilled by Joe T. King, contractor.

Two wildcats in Franklin County were at considerable depths: Adams Oil & Gas Company's Old Ben Coal Corporation 1 topped the Glendine lime at 2190 feet, the Cypress sand at 2383 feet and was drilling at 2690 feet. Buell, Incorporated's well in Section 4-5n-1e, Benton Township, found the Benoist sand dry and was drilling on towards the McClosky at 2540 feet.

In Jefferson County, S. M. Jennings et al's Patton, Section 1-1s-1e, near Walnut Hill, was at 900 feet. The wildcat is in the midst of a 1700-acre block which extends 3 miles east and west and 4 miles north and south. Ann-Bell Oil Company's M. Schlageter 1, Section 5-1n-1e, east of Central City, Centralia Township, Marion County, cored sufficient of commercial production and may be abandoned. G. C. Rockwood's H. Soper 1, Section 9-8n-1e, northeast of Ramsey, Fayette County, was a derrick. Surface elevation at this wildcat is 629.35 feet. M. & K. Oil Company's Kesner 1, Section 10-3n-2w, Irishtown Township, Clinton County, about 1½ miles southwest of Keysport, three sands without finding saturation was drilling below 1000 feet.

Eastern Fields

Two Birk City outposts due early decision.

Deep Indiana hole will get one more testing.

Pittsburgh, Pa.—Interest in the Birk City field of Henderson and Daviess counties, Kentucky, was centered last week on two outpost wells nearing production levels. Major Oil Company's Brown (Prudential) 1, ½ mile northwest of production was shut down at 1750 feet while awaiting tool joints. Northeast of production, A. Carpenter et al's Lytle 1 was drilling at 1325 feet after finding water in the Jett sand.

Henderson County oil production during July totaled 82,653.75 barrels for which $104,624.03 was paid producers, according to Dr. J. W. Martin, state commissioner

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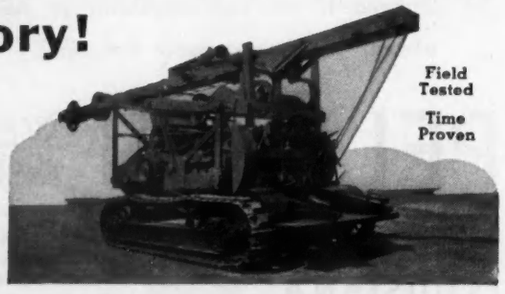

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of revenue. This compares with production of 50,520.44 barrels valued at $59,-366.27 in the previous month. Of July production, Fordsville Gathering Line Company, taking oil from the Birk City pool, handled 56,516.75 barrels; Aetna Oil Service Company, which also buys in the Birk City field, 19,918.02 barrels, and Ohio Oil Company, which buys in the Niagara field, 6,218.98 barrels.

Daviess County production during July totaled 34,376.07 barrels valued at $44,-539.94. Fordsville Gathering Line Company took 5,562.14 barrels for which producers were paid $7,081.83; Ohio Oil Company took 10,761.75 barrels at $13,990.26, and Producers Pipe Line Company took 18,052.19 barrels at $23,467.85.

EASTERN FIELDS
Completions

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
Ashland County—		
Harmon et al, Emerick 2	10	810
Belmont County—		
Peters & Huntsman, Davis 1	5	1352
Harrison County—		
Jewell O&G Co., Carver Hrs. 1	*	1390
Holmes County—		
Cline et al, Close 1	*	971
Knox County—		
Ewing et al, Banbury 1	25	2800
Ridgeway Bros. et al, Banbury 1	5	2800
H. E. Perkins Simpson 1	¶.90	2610
Davis et al, Jones 2	¶.08	940
Licking County —		
Wehrle Co., McCracken & Hickey 1	120	3076
H. B. Walker, Martin 1	40	3051
George Long, Ashcraft 2	10	2960
Vaughn, Porter 1	5	610
Stricker & Armbuster, Porter 1	2	601
Edmunds, Guthridge 1	*	819
Lorain County—		
McMillan, Youngberg 1	¶.70	2679
Medina County—		
Baldwin, Wolf 1	3	209
Meigs County—		
F. Frigate et al, Norris 1	*	901
Morgan County—		
D. T. Orndoff, Dale 1	¶	1420
Noble County—		
Keith et al, Crooktree 1	25	1280
L. A. Wickens 2	20	1285
Chaseville Oil Co., Rich 1	¶	1461
Perry County—		
Allegheney Oil Co., Monahan 30	2	1096
Vinton County—		
Kelch Bros., Wortman 1	*	780
Washington County—		
Williams Bros., Miller 4	¶.50	1257
Barker & Dailey, Pryor 3	¶.17	1279
E. F. Montgomery, Gross 4	2	900

KENTUCKY

Butler County—		
Frank Bernier, Willis 4	40	885
Evans et al, Harper 6	*	175
Harper 7	*	176
Evans & Phillips, Clements 1	*	492
Daviess County—		
Major Oil Co., Saunders 1	500	....
Ellis & Daugherty, Howard & O'Flynn 1	40	1104
Benedum & Trees, Calhoun et al 1	10	2006
Lang et al, Hazel 2	*	592
Fore 1	*	590
Floyd County—		
Hamilton Gas Co., Hatcher 77-D	¶.20	3248
Henderson County—		
Miller & Sharaela, Rash 1	*	1980
Hupp et al, Jones 1	*	1909
Martin County—		
Kentucky-W. Va. Gas Co., Preece 20	20	1344
Virginia G&O Co., V-1268-4	*	1349
Ohio County—		
Coffee et al, French 1	20	....
Hardie, Bean 5	15	619
Fred J. Young et al, Coleman 4	*	630
Stewart et al, Dunn 20	*	....
Powell County—		
South Penn Oil Co., McCoy 24	2	....

WEST VIRGINIA

Cabel County—		
R. H. Adams, Wheeler 1	¶.30	2190
Clay County—		
Pittsburgh & W. Va. Gas Corp., Hall 7664	¶1.25	1519
Gilmer County—		
McCall Drilling Co., Snyder 1	¶.20	2083
Kanawha County—		
South Penn Oil Co., Monk 1	¶19.00	5121
Pure, Slaughters Creek 8	¶.79	3155
Mason County—		
Interstate Utilities Co., Rayhould 1	¶.06	675
Nicholas County—		
Hope Nat. Gas Co., Lewis L&C Co. 1	¶.17	1977
Pleasants County—		
Log Cabin Oil Co., Triplett 1	*	1458
Tyler County—		
Rae Oil Co., Brooks 3	5	722
Wetzel County—		
Manufacturers L&H Co., Kincaid 1	¶6.00	2000
W. F. Burgess, Ritz 1	¶1.00	542

Final Test of Deep Hole

A final attempt to make a producer of Carter Oil Company's C. Graulich 1, Section 4-7s-14w, Black Township, Posey County, deepest hole to be drilled in Indiana, was scheduled for this week. The well was plugged back to 1000 feet for gun perforation at that level. Previous shots were made at 2500 and 1600 feet, after the hole was carried to 5035 feet, but only water poured into the hole.

Sun Oil Company's W. W. Gray 1, wildcat in Section 29-8s-14w, Point Township, Posey County, acidized a McClosky saturation found at 2700 feet and swabbed 132 barrels the first 12 hours. Bottom is at 2707 feet.

Parshall & Graham started a test last week for Carter Oil Company in the White River bottoms of Decker Township, Knox County, Indiana, which will be made a deep test. While no other tests are active in this township at present, there are several other wells drilling in other parts of Knox County. Several shallow wells were drilled in Decker Township some years ago.

In the New York-Pennsylvania deep sand gas fields, New Penn Development Company announced abandoning three wildcat tests, all of which had been shut down for several weeks. Haupt 1 was bottomed at 57 feet and J. Hill 1 at 6454 feet, both in West Branch Township, Potter County, Pennsylvania. In Schuyler County, on the New York side, Federal Land Bank 1 in Dix Township, had been drilled to 6600 feet.

Completed operations in the Eastern States gained in Ohio, Kentucky and Pennsylvania and dropped in West Virginia. The net gain was 5 wells. Ohio advanced 5 from the previous week's 21, last week's 26 wells including 14 oil wells averaging 20 barrels daily initial, 7 gas wells and 5 dry holes. Kentucky climbed from 17 to 19, which included 8 oil wells averaging 81 barrels, 1 gas well and 10 dry holes. Pennsylvania had five completions, compared to the previous week's 2, but there was only 1 5-barrel oil well among them. The other 4 were dry holes. West Virginia dropped from 16 to 11, which included 1 small oil well, 9 gas wells and 1 dry hole.

PENNSYLVANIA

Company, Well and Location	Init. Prod. Bbls.	Depth
Bradford District		
S. H. Elder & Co., Hamlin	½	....
Crawford & Simon, Kinley	4	....
N. V. V. Franchot, Mgr., Trustee	12	....
Victory Oil Co., Wright	1	....
First Nat'l Bank, Port Allegany, Fee	5	....
Mix Creek Oil Co., Fee	1	....
Bradford Transit Co., 10 wells	10	....
Forest Oil Corp., 3 wells	3	....
Niagara Oil Corp., 6 wells	6	....
Bradford: Water (Pressure) Wells		
Victory Oil Co., Wright	...	....
Niagara Oil Corp.	...	....
Butler-Armstrong District		
E. Z. Peffer, George Garing	2	....
Leithold & Co., Humes	*	....
Middle District		
Mary M. Cunningham, Argeon	½	....
Lee A. & Florence E. Heffern, McCormick	½	....
S. Y. Ramage, Jr., Henderson	1	....
J. B. Hadden, Lot 2	1	....
Middle District: Water (Pressure) Well		
Clinger Oil & Gas Co., Clinger Oil & Gas Co.	...	....
New York-Pennsylvania: Gas Field		
Cunningham Natural Gas Co., Thomas Hart	*	....
Greene County—		
Equitable Gas Co., Thorp 2522	*	3291
Potter County—		
North Penn Dev. Co., Hill 1	*	6450
Haupt 1	*	5700
Tioga County—		
New York State Nat. Gas Co., Dickerson 2	*	5424
Washington County —		
Penn O&G Co., Davis 1	5	3040

INDIANA

Company, Well and Location	Init. Prod. Bbls.	Depth
Decatur County—		
Hoosier Public Utility Co., Ruhl 1	¶	917
Knox County—		
National Consumers Oil Co., Winemiller 3	¶	814
Shepard 2	*	836
O. A. Thayer, Taylor 2	*	789
Perry County—		
Chas. E. Dice, Dixon 7	5	361
Pike County—		
J. C. Ellis, Coleman 2	5	984
Murphy Oil Co., Stewart 5	7	994
C. L. Trusler, Craig Estate 2A	¶	621
Posey County—		
Sun, Miller 1	100	1789
Shelby County—		
J. H. Snider, Milburn 1	¶	933
Kemper 1	*	929
Sullivan County—		
Big Four O&G Co., Ridgeway 1	¶	795
Dome Gas Co., Bays 1	*	430
Vigo County—		
Carter, Fenton 1	100	2150
L. M. Paddock 2	100	2169
Slosi Co., Riggs et al 25	70	2218

NEW YORK

Allegany County—		
Bradley Prod. Corp., Sawyer farm, Bolivar	6	1343
Sawyer farm, Bolivar	5	1348
Sawyer farm, Bolivar	6	1339
Sawyer farm, Bolivar	5	1345
Sawyer farm, Bolivar	7	1350
Sawyer farm, Bolivar	5	1342
Sawyer farm, Bolivar	5	1348
Bradley Prod. Corp., Coon farm, Genesee	2	1310
Coon farm, Genesee	2	1296
California Oil Co. farm, Bolivar	5	1329
Tullar farm, Alma	8	1260
Tullar farm, Alma	7	1252
Sloan & Zook, McDivitt farm, Bolivar	2	1312
McDivitt farm, Bolivar	2	1318
McDivitt farm, Bolivar	1	1325
McDivitt farm, Bolivar	1	1316
Phillips & Derrion farm, Bolivar	1	1320
Reynolds & Runyan, Burdick farm, Bolivar	5	1220
New York Oil Co., Brown farm, Bolivar	7	1322
R. B. Moore, Wetherby farm, Bolivar	8	1360
Lemont Oil Co., Pierce farm, Wirt	6	1250
Pierce farm, Wirt	5	1261
D. V. McCarthy, Holcomb farm, Bolivar	5	1240
Gilligan & Dermitt, Gilligan farm, Bolivar	8	1235
Gilligan farm, Bolivar	6	1242
I. B. Lawrence, Allen farm, Scio	5	1130
Marsh Oil Co., Fav farm, Bolivar	6	1310
A. G. A. Oil Corp., Burdick farm, Wirt	4	1270
Ella Oil Corp., Crandall farm, Bolivar	5	1290
Martin O'Connor Est., O'Connor farm, Genesee	4	1260
Shamrock Oil Co., Frost farm, Genesee	7	1275
Willets & Paul Corp., Willetts farm, Genesee	6	1420
Wilson Oil Co., Wales farm, Genesee	4	1312
Water (Pressure) Wells		
Allegany County—		
Jacob Trinkle Est., Hill farm, Genesee	...	1330
Swan Oil Co., Colgrove farm, Genesee	...	1325
Colgrove farm, Genesee	...	1315
New York Oil Co., Brown farm, Bolivar	...	1398
Forest Oil Co., Ackerman farm, Bolivar	...	1282
H. N. & W. E. Sawyer, Thomas farm Bo'ivar	...	1226
L. H. Thornton et al, Fanton farm, Willing	...	1210
Chenunda Creek Oil Co., Graves farm, Willing	...	1170
Ebenezer Oil Co., Emerson farm, Scio	...	1150
Homestead Oil Co., Homestead farm, Bolivar	...	1320
Homestead farm, Bolivar	...	1326
Schuyler County—		
New Penn Dev. Co., Land Bank 1	*	6600

*Failures; †Junked; ¶Million cu. ft. gas

Rocky Mountain Fields

North Baxter Basin extension attempt showing oil.

Summit County, Utah, wildcat is dry at 5538 feet.

Casper, Wyo.—Continental Oil Company released location for a new well to be drilled in the recently proven southern sector of Lance Creek, offsetting to the west the Minnelusa Oil Corporation's H & M 1, which recently was completed as the record producer in the Leo producing sand for the field. The new well will be Dielman 1-B, SW SE NE 7-35n-65w, about ⅛-mile west of the H & M producer.

This is the second well to get underway in this sector of the field following the extension of the proven area of the Niobrara County part of the field to the southeast by Minnelusa's record well. The first was Ohio Oil Company's Elizabeth Lamb-Account 211, SW SE SE 5-35n-65w, which is drilling below 2730 feet, north and east of the Minnelusa well.

Continental Oil Company's other active well in the field, Apex OPC-3, 3, NW NE NW 34-36n-65w, in the northern sector of the Lance Creek producing area, will apparently make a good producer at 5353 feet in the Leo sand, second bench of the Minnelusa series in this field. Casing has been cemented in the top of the formation at 5315 feet. The well showed for 26½ barrels of oil per hour on first 13 hours test.

Selegna Test Showing

Selegna Oil Company's Union Pacific 1, SW SW 11-20n-104w, drilling as a northeast extension test of the North Baxter Basin gas field, in Sweetwater County, southern Wyoming, was reported to have good oil shows. The well bottoms in the lower Sundance horizon at around 5076 feet.

Ohio Oil Company and The California Company's deep test well in Big Medicine Bow field, in Carbon County, Wyoming, William Kyle 3-A, SW NE 26-21n-79w, drilling in Tensleep sand at 7456 feet, will be drilled to granite for a complete test of the structure.

Steady progress is reported on the deep rotary wildcat on the Dry Piney structure: The Frontier Petroleum Corporation's No. 1, SE SE SW 1-26n-114w, is drilling in shale at a depth of 3100 feet with the objective Wall Creek sands expected at around 5000 feet. Location is in Sublette County, Wyoming.

Cunningham Oil Company's new start on the Horne structure, Carbon County, NW SE NE 21-22n-78w, is moving in portable machine while company's other new well, Wolfe-Union Pacific 1, SE NW SW 7-23n-78w, on the Flat Top structure is a location waiting on machine.

A new location in the central Wyoming district was Bill Griffin et al's 1, NE SE NE 18-30n-67w, which is spudding in with cable tools in the Glendo area of Platte County, Wyoming.

General Petroleum is waiting on cement to set for a formation shut-off to prevent further loss of circulation in State 1, NW NE SE 16-35n-77w, in the new Cole Creek field, Natrona County, central Wyoming. Hole is down 3460 feet in the top of the Steele shale formation. It drilled out of the Mesa Verde sands at approximately 3100 feet.

An important Utah wildcat failed this week when Mountain Fuel Supply Company's J. H. Wilde 1, NEc NE SE 9-2n-5e, on the Spring Valley structure, Summit County, was dry to 5538 feet. The measured section of the Frontier formation in which hole bottoms and in which drill entered a few hundred feet below the surface beds, is 1200 feet at out-croppings near the structure, and the well is believed to have drilled through a major fault that transverses Spring Hollow. The test was drilling to open a new gas reserve along the Mountain Fuel's major pipe line from the Baxter Basin fields of southwestern Wyoming to Salt Lake City, Utah.

MOUNTAIN STATES
Completions

MONTANA

Company, Well and Location	Init. Prod. Bbls.	Depth
Glacier County (Cut Bank Field)—		
A. R. Pardue, Tribal 1, 171, se se sw 7-32n-5w	180	2739
Toole County (Kevin-Sunburst Field)—		
Lion Oil Co., Haugen 4, ne se se 11-35n-3w	100	1890
O. A. Nepstead, Haugen 2, nw nw ne 11-35n-3w	8	1848
General Oils, Ltd., State 1, nw ne se 36-35n-4w	*	1898

WYOMING

Hot Springs County (Waugh Dome Field)—		
Honolulu Oil Corporation's Government 1, ne se ne 12-44n-97w	*	4123
Natrona County (Salt Creek Field)—		
Stanolind Oil & Gas Co., Wyoming Associated Oil Co., TP 26, cse sw 26-40n-79w	168	4050
Weston County (Osage Field)—		
George Keisling 1, nw ne ne 35-46n-64w	110	1956

*Failures; †Junked; ‡Million cu. ft. gas.

New Mexico

Vacuum extension try gets oil in separate structure

Hobbs, N. M.—A new high-gravity oil pool for Lea County was indicated September 8 when Helmerich & Payne, Inc. and Continental Oil Company's State 1-G-36, C NW SW 36-17s-35e, sprayed oil with 1,000,000 feet of gas when formation tester was used at 4790-4920 feet. Porosity was logged in lime at 4840-60 feet and the formation drilled soft to 4920 feet. It is two miles southeast of nearest production in the Vacuum field and on a strike between the latter and the north end of the Monument field. Casing has been cemented for completion at the above depth. The oil tests 41 gravity and is apparently free of sulphur content.

This wildcat was primarily seeking an extension for the Vacuum field but registered an unusually low structural position in logging base of salt at 1990 feet with an elevation of 3903 feet. The production is below the normal water level of the Vacuum field and definitely occupies a separate geological feature. Continental Oil Company gave three fourths interest in the 160-acre drilling site and $5000 cash to the Oklahoma contractor for the drilling of a 5000-foot test and other owners of short term leases contributed. Continental Oil Company holds lease on additional acreage in the immediate area.

Hobbs, N. M.—The Vacuum field maintained its position as the outstanding drilling center of the state in contributing 4 of the 7 new tests assigned to Lea County the past week. Recent series of extensions given the east portion of the Vacuum structure greatly stimulated drilling, and each new project in turn calls for offsets, since the operators are adhering to center of 40-acre spacing. This wide interval between wells invariably forces progressive offsets.

Shell Petroleum Corporation, large lease owner in the east extension sector, awarded contracts for the drilling of three of its State leases. These included State 1-F, C SW SW 29-17s-35e; State 1-H, a north offset; and State 1-S,

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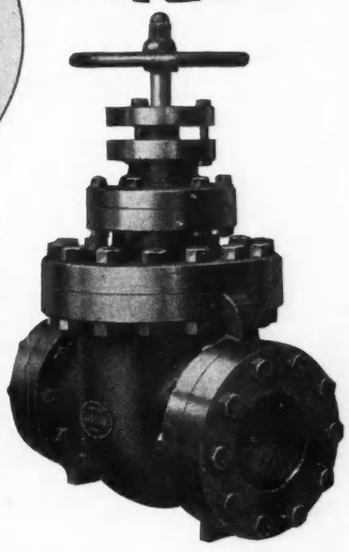

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WILLIAMS

SUPERIOR DROP-FORGED TOOLS

C NE SE 21-17s-35e. Magnolia Petroleum Company returned to 6 operations in starting work on State 1-M, C NE NW 34-17s-35e. The latter company's State-Bridges 13, C SW NW 25-17s-34e, and State-Bridges 14, C SW NE 25-17s-34e, failed to flow when tested at 4760 feet and 4720 feet, respectively, and both have been given nitro shots.

The Texas Company's State 1-S, C NW SW 35-17s-34e, ½ mile west of the south sector of the field, has cemented 5½-inch pipe at 4192 feet. Shell Petroleum Corporation's State 1-G, C SE SE 22-17s-34e, key well on the west side for the starting of numerous progressive offsets, filled 3000 feet with oil after 3-stage treatment with 9000 gallons of acid at 4765 feet. Continental Oil Company and Helmerich & Payne's State 1-G-36, wildcat 2 miles southeast of Vacuum production, was classed as a probable failure after drilling to 4780 feet without encountering oil or gas. Base of salt series was called at 2990 feet, with an elevation of 3903 feet.

Continental Oil Company's State 1-I-7, NE NW NE 7-17s-34e, 4 miles northwest of the Vacuum field and less than ½ mile southwest of a wildcat pumper, was drilling dry lime at 4765 feet, with an elevation of 4130 feet. It is 68 feet below the plugged-back depth of the producer, but if the water table is constant in the area, bottom hole water will be found near the 5000-foot level.

Continental Oil Company et al's Meyer 1-B-31, C NW SW 31-20s-38e, offsetting production in the north portion of the Hardy field, flowed 108 barrels of 36 gravity oil natural in 3 hours through ¾-inch choke for completion in sandy-lime at 3720-90 feet. Continental Oil Company's State 1-A-36, SE SE 36-20s-37e, a southwest offset, missed the regular pay and tested dry at 3845 feet, or 59 feet lower structurally than the above well. Gulf Oil Corporation's McCormack 6, C NW SE 32-21s-37e, located in the south portion, has rigged up. In the Langlie area, Phillips Petroleum Company and Pure Oil Company's Woolworth 3, C E½ SE SE 33-24s-37e, is a new project, and was drilling at 2530 feet last midweek. Sam Weiner et al are making a location bordering the above half section lease on the west.

F. C. Wilson et al's State 1, C SW NE 7-21s-35e, located ⅞ mile southwest of a depleted wildcat producer drilled by Empire Oil & Refining Company, has rigged up rotary. Emperor Oil Company's State-Humble 1, C SE SW 36-20s-35e, 2 miles northwest of the above abandoned producer, was drilling at 1100 feet, and will change to cable tools in penetrating the salt series. The bulk of the nearby acreage involves short-term leases. Emperor Oil Company has disposed of all but 240 acres of its original drilling block, and is making the test on the theory that a small structure is present.

Jas. Mascho et al's Cloyd-Conoco 2, southwestern Lea County wildcat, suspended operations in Gray lime at 4755 feet after fulfilling depth contract. It may be deepened to the Delaware series, the original objective.

Shell Petroleum Corporation is credited with having made a tentative location for a deep wildcat in south central Roosevelt County to be on a federal permit in 27-7s-35e, about 5 miles north by east of Milnesand. The company has carried on extensive geophysical operations during the past 18 months, and holds checkerboard leases in 6 townships. J. C. Maxwell and associates drilled several tests to the south in Lea County within the past two years, and have retained extensive lease protection along the border of the two counties.

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SHEAR-RELIEF VALVE

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Chaves County—		
J. & L. Drl. Co., Hurd 1, 11-11s-26e	†	1000
Eddy County—		
Wills et al, Stovall-Wood 2, se se nw 20-20s-30e	100	1415
Heartwell et al, Vandergriff 1, ne ne se 8-18s-27e	9	2085
Lea County (Maljamar)—		
Maljamar O. & G. Corp., Mitchell 5, c nw nw 19-17s-32e	20	4033
Lea County (Mattix)—		
McLaughlin et al, Polhamus 1, sw nw ne 9-24s-37e	10	3672
Lea County (Penrose)—		
Penrose & Rowan-Nichols Oil Co., Christmas 1, se se se 28-22s-37e	97	3690
Peters et al, May-Gulf 2, c w½ se se 27-22s-37e	500	3651
Lea County (Vacuum)—		
Drilling & Exploration Co., State-Amerada 1, c sw sw 22-17s-35e	550	4634
San Juan County—		
Brawley et al, Hare 1, nw ne 23-29n-11w	*	823
Continental, Rattlesnake 74, c e½ se ne 2-29n-19w	80	903
Rattlesnake 76, near c ne 2-29n-19w	38	884
Frank Lischke et al, Fed. Permit 1, sw 27-30n-11w	¶½	1530
McKinley County—		
Dysart et al, Fed. Permit 3-A, ne nw ne 14-14n-10w	*	500

*Failures; †Junked; ¶Million cu. ft. gas.

Michigan Fields

Freeman-Redding completion to double active field work. Diamond Springs area indicated bigger than first thought.

Mt. Pleasant, Mich.—Active drilling operations in the Freeman-Redding district, Clare County, are expected to double by mid-month over the present 16-well campaign as a result of Pure Oil Company's 1½-mile north extension producer and completion of two offsets to the discovery. Socony-Vacuum Oil Company's Van Horn 1, Section 3-18n-6w, Freeman Township, north offset to the discovery, initialed 569 barrels natural from Monroe lime at 3892 feet and was kicked up the following day to 175 barrels first hour, net, with a 1,000-gallon acid treatment. It fell off to 110 barrels for the second hour and then was pinched back and flowed through 2-inch tubing at rate of 56 barrels an hour against 340 pounds tubing pressure. On the basis of these tests it was rated at 2,000 barrels for potential, or double the after acid potential of the discovery well. However, the discovery, which had a 286-barrel natural flow was not acidized to its 1015 barrel top flow until 31 days after original completion.

Gulf Refining Company's Van Horn 1, east offset to the discovery, showed a hole full of oil natural but appeared to lack porosity and gas to flow. A 500-gallon acid-treatment was injected and swab started September 6 without a gauge at that date.

Failure of Gulf Refining Company's test to flow natural coupled with picking up the base of the Redrock, which is accepted as one of the best upper red markers, 13 feet low on Dapar & Weller's White 1, Section 2-18n-6w, 1¼-mile east and ¼-mile north of the discovery, caused the east side of the play to cool off considerably.

Pure Oil Company acidized Switzer 1, Section 27-19n-6w, Redding Township, 1½ miles north of the discovery, and first swab tests indicated production probably would not pump better than 60 to 90 barrels daily. This test is looked on as significant to the future of the play, however, because of making production and showing structure.

The Freeman-Redding district now is being serviced by two short 4-inch pipe lines to railroad loading racks. Simrall Pipe Line Corporation has a 3½-mile 4-inch line from the discovery to Lake George and Pure Transportation Company has a 4-inch line from the Redding extension producer extending north into Temple.

Michigan-Toledo Pipe Line Company plans construction of a 28- to 30-mile 6-inch welded line from the Mt. Pleasant station northwest to Freeman. Survey work was started September 4.

Western Michigan

Western Michigan development continued brisk during the week with Lima Oil Company's Gates 1, NE SW NE Section 1-3n-14w, Heath Township, Allegan County, looming as the most important development of the week. Gates 1 initialed 57 barrels an hour from 1460 feet in Traverse limestone to indicate a much wider productive area in the Diamond Springs field than had been anticipated by earlier developments. The well is a south offset, and farthest south well so far drilled, to a test that showed only a hole full of oil natural from the same zone but which jumped to 400 barrels with acid treatment.

Previously, a near failure on the east and the drop off in the north offset, had led to the opinion that the Gates lease would establish the south edge of the pool. Six machines were being moved in farther south September 6 as a result of the prolific strike.

Production has been developed three quarters of a mile north-south and a mile east-west. Dry holes appear to define both the east, north and west edges of the pool.

Farther northwest of the Diamond Springs pool, in Section 21-4n-14w, Overisel Township, Allegan County, Smith Petroleum Corporation's Slotman 3, west offset to the White-Stewart discovery completed two weeks ago, failed to produce commercially and two other tests drilling on the west side loomed too low to complete. Drilling now has shifted east where seven tests are active. The discovery is producing 410 barrels daily through 2-inch tubing.

Drilling operations in the new Bloomingdale district, Van Buren County, where 1221-foot Traverse lime production was established August 17 by Fisher & McCall's Wiggins 1, Section 9-1s-14w, had jumped to 13 this week with two offsets due to complete this week.

The discovery has produced as high as 1,380 barrels over a 24-hour period and currently is averaging 750 barrels daily. Leasing and royalty dealing has

Big gas strike proves headache. McClanahan Oil Company's Perkins 1, Section 15, Freeman Township, Clare County, with a 3900-foot Monroe lime oil objective, struck a 16,900,000 cubic foot gas flow in the Michigan stray sand at 1472-85 feet to point to an important new gas reserve in Michigan. However, for the moment at least the big gas strike was little short of a headache for the company. It had to drill through wet, and for three days drilling crews were whipped soundly by flowing gas and water, as shown in one of the accompanying views in which the driller is trying to get the bailer into the hole and is taking a good drenching. Deflection to the side, lower photograph, helped some. Killed with mud and cemented at 1776 feet, gas broke through again to further delay drilling for the original objective.

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spread over a 30-mile long district with the likelihood of a drilling campaign in the village of Bloomingdale, a half-mile south of the discovery. Leasing on town lots has been active with one location reported in the village this week.

Naph-Sol Refining Company expected to have a 3-inch line from the discovery district into Bloomingdale completed this week. Shipment will be made from Bloomingdale via the Michigan Central Railroad.

Meanwhile, pipe line outlets were on the pick up in other sections of the Allegan County development district this week. Commonwealth Pipe Line Company has completed its 25-mile 4-inch system which connects up all the major development areas to loading racks at Vriesland. This line parallels Naph-Sol's which was placed in service two weeks ago.

Simrall Pipe Line Corporation has under construction 14 miles of 4-inch besides gathering lines in the Diamond Springs pool, which will provide additional pipe line service. Simrall will terminal for rail shipment at Hilliards, Michigan.

HERMAN W. FALK, president of the Falk Corporation, and Lester Armour, of the Chicago packing family, last week were named to the directorate of the Allis-Chalmers Manufacturing Company, Milwaukee, to fill vacancies on the board.

MICHIGAN

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegan County—		
Daily Crude, Anderson 1, sw se ne 17-2n-15w	•	1402
Crown Dev. Co., Shields 1, ne se sw 30-4n-12w	215	1580
Lima Oil Co., Gates 1, ne sw ne 1-3n-14w	1140	1461
Gordon Oil Co., Schlten 4, nw ne nw 1-3n-14w	•	1561
United Drillers, Low 1, sw sw sw 24-1n-15w	•	1227
T. F. Caldwell, Taylor 1, nw nw nw 6-3n-13w	•	1591
Muskegon Dev. Co., Swanders 3, sw ne sw 9-3n-13w	75	1630
Ross, Tr., Skinner 2, se nw ne 17-3n-13w	35	1628
J. W. McIntosh, Grohneide 2, sw se sw 36-4n-14w	•	1516
Sprenger Bros., Huizen 6, se se se 36-14n-4w	50	1469
Bridger Basin, Lampen 1, nw sw sw 31-4n-13w	•	1524
Arenac County—		
Swanson Cons., Shepard 5, se nw sw 4-20n-4e	160	2401
Barry County—		
Associated Dev., Natzel 1, nw nw sw 4-2n-9w	•	1896
Clare County—		
Socony-Vacuum, Van Horn 1, se nw nw 3-18n-6w	569	3892
Pure, Switzer 1, c s½ nw sw 27-19n-6w	45	3900
Gladwin County—		
Marshall Bauman, Hostetler B2, se sw ne 27-18n-1w	400	3995
Isabella County—		
Pure, McClintic B10, sw 33-15n-6w	364	3627
Kent County—		
Comstock, Donovan 1, sw ne se 4-8n-9w	•	2971
Midland County—		
Sun, State B11, nw ne se 27-16n-1w	379	3795
R. E. King, Wolverine 2, sw ne nw 26-16n-1w	•	3786
C. W. Teater, Tushingham 1, sw ne sw 26-16n-2w	•	3909
Ogemaw County—		
Weber Oil Co., Crawford 5, nw sw ne 28-22n-2e	6	2695
Ottawa County—		
Newhouse & Hogue, Zwemer 1, ne nw nw 25-6n-16w	•	1605

*Failures; †Junked; ¶Million cu. ft. gas.

California Fields

North Belridge completion makes flow of 2700 barrels. Wasco deep holes near level where production is expected.

Los Angeles.—The Texas Company last week completed one of the biggest producers in recent months in the North Belridge field, Kern County. Its Martin 4, Section 22-27-20, which bottomed at 8513 feet, swabbed in for an initial yield of approximately 3700 barrels of high gravity oil along with 3,500,000 cubic feet of gas per day. After potential test the flow was choked in to around 350 barrels daily to conform to conservation regulations.

Another Texas Company project that so far has failed to kick through with anything of interest is Camp-West-Lowe 1, a wildcat that has explored below 10,000 feet in Section 7-29-27, northwest of the old Fruitvale field. This endeavor is one of many that have tried to develop something in the deeper zones underlying the productive horizons at Fruitvale, and to date it has not penetrated any showings that justify a production test. Another wildcat being drilled by The Texas Company is Lewis 1, Section 13-19-5, northwest of King City, Monterey County. Prospecting what is described as the Arroyo Seco anticline, Lewis 1 is down to about 3000 feet and is making progress with the drill in hard brown shale, and steep dips in the formation are being encountered. A third wildcat that has previously been announced by the company is a project at the edge of Santa Monica, in the Los Angeles Basin. At first opposed by property owners, the company secured a permit from the City Planning Commission to drill this test that may be the signal for greater exploration close in to a wildcat that was drilled some six years ago and which had showings.

Lomita to Get Active

There are indications that greater activity will be forthcoming in the Lomita extension to the old Torrance oil field due to recent completion of California Star Oil Company's Lermans 1 for 750 barrels of oil per day. This completion is expected to compel General Petroleum Corporation to spud in a new well on the nearby Poggi parcel. A water shut-off was successful in Poggi 9 that has been bottomed at 5426 feet and an attempt will be made to bring it in this week. Peak of development at Lomita is expected to be reached in two or three weeks with the possibility that the field will enter into a decline before January 1. East of the D. & B. discovery well, The Texas Company is drilling Oakley 1, while Richfield Oil Company is completing site for Spring 1, while Sierra Trading Company has finished derrick for its first drilling venture in this new field.

Rather than spend more time in trying to get past junk in KCL C-1, wildcat in Section 27-27-24, west of Wasco, Continental Oil Company plugged back to 11,014 feet to redrill and now is below 11,900 feet with a fair chance of surpassing soon the old bottom at 12,778 feet where the first difficulty developed. This project was only a short distance short of the expected oil sand when mechanical problems developed.

At Wasco, Continental Oil Company's KCL A-3 is within 200 feet of the productive zone found by KCL A-2, discovery well, and expectation is that within three weeks another producing well will be recorded for this important San Joaquin Valley field. The drill has been penetrating a hard shale formation below 12,980 feet. Standard Oil Company's Mushrush 1, a direct offset to the discovery well, is below 11,500 feet. Standard Oil Company's KCL 8-B-1, due south of the discovery well, is below 12,300 feet, and it is only a question of days when two new wells may be brought in which would give geologists additional data as to the limits of this field that was brought in last April.

Ninth Well at San Miguelito

A ninth producer may be completed within a week in the privately controlled San Miguelito field a few miles north along the coast from the Ventura Avenue field by Continental Oil Company. Grubb 9 is standing cemented with 8⅝-inch casing cemented at 5615 feet and bottom of the hole at 5905 feet. San Miguelito has developed into one of the surprises along the coast.

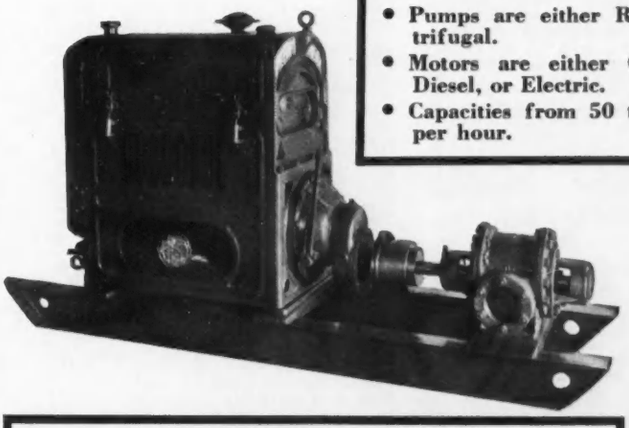
Wilcox 2, situated in the West Montebello field, was brought in last week by Union Oil Company. It started flowing into the tanks rated at 610 barrels of 34.8 gravity oil per day through a 28/64-inch choke along with 860,000 cubic feet of gas from 6254 feet in the sixth zone. St. Helens Petroleum Company's Monterey 28, which bottomed at 6290 feet with 7-inch casing cemented at 6215 feet in the sixth zone, is slated for completion this week.

Superior Oil Company's Seaside School 2, in the Terminal zone at Long Beach Harbor, came in for an initial yield of 800 barrels daily, but has been curtailed to 400 barrels daily, from 3880 feet. Richfield Oil Corporation's Richfield Terminal 1 is good for 155 barrels daily at 3080 feet.

CALIFORNIA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Dominguez—		
Union, Callender 62	376	8361
Montebello—		
West Montebello, Montebello 1	895	6268
Torrance Extension—		
California Star, Lermans 1	315	5283
O'Brien 1	465	5325
Isco, Extension 1	236	5313
Torrance—		
C. C. M. O., Torrance 16	122	5000
Freeman Holding, Baxter 1	265	4895
Jewel, Jewel 1	110	4963
Kovell, No. 2	325	4965
C. L. McWherter, McWherter 1	250	4975
MacDonald & Burns, Moore 10	283	5004
Packard Pet. Co., Lomita 4	410	4960
Standard, Marble 1-12	732	4988
Wilmington—		
General, Harbor Comm (LB) 45	21	3090
Macson, No. C-55-4	485	3070
O'Kane & Brain, Inc., "O" (LB) 3	375	2957
Richfield, Richfield Terminal 1	150	3080
Belridge—		
Richfield, Belridge 2	514	8375
Fruitvale—		
Meridian, Fee 5	225	3109
Western Gulf, KCL B-38	285	3014
Kern Front—		
California Star, No. 5-80	120	2660
Midway-Sunset—		
Mary B. Cates, Special 8	9	860
Rio Bravo—		
Union, Kernco 3-4	4000	11,510
Ten Section—		
Shell, KCL-B-72	1801	8200
Santa Barbara Mesa—		
Anacapa Oil, Lowe 1	50	2108
El Capitan—		
Shell, Covarrubias 1-28	525	1673
Elwood—		
Barnsdall, Luton-Bell 19	25	5690
Ventura Avenue—		
General, Barnard 18	1800	8410
Brea—		
Brea Canyon, No. 48	*	5064
Mt. Poso—		
W. P. W. Pet. Co., W.P.W. 5	*	1247
San Emigdio—		
Shell, KCL 1-A4	*	10,374

*Failures; †Junked; ‡Million cu. ft. gas.



PUMPING UNITS

For Crude Oil or Refined Liquids

- **Pumps are either Rotary or Centrifugal.**
- **Motors are either Gas, Gasoline, Diesel, or Electric.**
- **Capacities from 50 to 500 barrels per hour.**

SOUTHERN

SOUTHERN ENGINE & PUMP COMPANY

HOUSTON, DALLAS AND KILGORE, TEXAS

IMPORTANT WILDCAT TESTS

FLORIDA

Levy—Florida Oil Discovery Co.'s Sholtz 2, sw sw ne 9-15s-13e, sd 3853 ft, blue shale. **Nassau**—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw nw se 19-14n-24e, elev 110 ft, 6⅝-in csg 3935 ft, sd 4510 ft. **Polk**—Edw. A. Hill's Polk County Lbr. Co. 1, nw nw ne 32-25s-25e, dk. **Suwannee**—Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, elev 70 ft, sd for heavier rig, td 200 ft. J. W. Phillips Oil Explorations' Shilkett 1, nw nw 14-4s-14e, spd.

CALIFORNIA

Los Angeles: George L. Clayton's Scott 1, 21-3-12, sd 6897 ft. Royal Land's No. 1, 8-4-17, sdtr bit 1060 ft, td 1083 ft. D. H. B.'s Buena Park 1, 34-3-11, dr sand and shale 2019 ft. John McKeon's Carmenita 1, 21-3-11, dr 8310 ft. Rolling Hills' Weston 1, 27-4-14, r 5100 ft. Tide Water Associated's Porter 1, 27-3-16, wo 3799 ft. R. T. Grady's Sepulveda 1, 23-5-14, building rig. Security Land's No. 1, 8-2-11, dr 2181 ft. **Orange:** New Fields' No. 1, 16-5-11, lcn. A. V. Oil's No. 1, 16-6-10, preparing to deepen 4634 ft. **San Bernardino:** Southern Counties' Los Serranos 1, 22-2-8, dr 960 ft. **San Diego:** Dauphin Development's Irwin Kelly 1, 16-12-4, dr 315 ft. **Fresno: Coalinga**—Holly Development's No. 1, 12-20-15, lcn. Pet. Sec. Co.'s Grimes 88-120, 12-20-15, wocs 6787 ft. No. 7-7F, 7-20-16, oih, wocs 6747 ft; No. 31-18F, rig. Magnet's Fearon 2, 18-20-15, coring top of Eocene 3991 ft. Medford's F. C. Goetz 1, 10-20-15, dr 5765 ft. Standard's No. 82-13-C, 13-20-15, dr 5871 ft. Superior's Hight 1, 8-20-16, dr 7896 ft. Texas Co.'s Mohawk 19, 12-20-15, wo 4424 ft. Tide Water Associated's Fleishacker 57-1, 1-19-15, dr 3100 ft; Guardian 66, 12-20-15, dr 5640 ft. Universal Consolidated's Leavitt-Hintze 1, 12-20-15, dr 7421 ft. Pure's S.P.L. 1, 31-18-17, dr 12,020 ft. Jacalitos Pet. Co.'s No. 1, 14-21-15, dr 7138 ft. Dauphin Dev. Co.'s Ragan 1, 19-21-14, dr 1632 ft. **Kern: Belridge**—F. E. Abbott's No. 1, 18-27-19, rig. **Buena Vista Lake**—Ohio's KCL A-8, 32-31-26, wo 11,186 ft; KCL F-1, 10-31-25, dr 4799 ft. **Buttonwillow**—California Lands' Salisbury 1, 7-29-24, dr 1398 ft. **Canal**—Shell's KCL B-87-4, 4-30-25, lcn. **Devils Den**—Gibson's Alferitz 3, 14-25-18, dr 1075 ft. **Dominion**—Master Pet. Co.'s U. S. 1, 34-26-28, dr 823 ft. **Edison**—G. W. Johnson's Brown-Paulette 1, 33-29-30, csg 1162 ft. G. E. Renner's R. H. L. 2, 27-30-30, dr 200 ft. **Elk Hills**—Richfield's Tupman-Western 1, 32-30-25, dr 7513 ft. **Fruitvale**—Texas Co.'s Camp-West-Lowe 1, 7-29-27, dr 9720 ft. Continental's KC 1 B-2, 12-29-26, dr 8990 ft. **Grapevine-Wheeler Ridge**—Petrol's Reserve-Petrol 33-5, 33-11-19, rur, owdd 4607 ft. Hall-Baker's Reserve 33-2, 33-11-19, wo 4615 ft. Richfield's KCL 1, 28-11-20, dr 6300 ft. Wilshire's Tejon 34-1, 34-11-19, rig. **McFarland**—C. C. White's Armstrong 2, 9-26-26, rig. **McVan**—Desert Glow's No. 3, 14-27-27, rig. Chas. R. Fickert's Claflin 2, 10-27-27, sd 2169 ft. Framac's Brown 3, 22-27-27, wocs 1355 ft. **Midway**—Julius Freid's No. 1, 34-32-24, lcn. **Mt. Poso**—Trico Oil's Villard 1, 17-26-28, dr 1400 ft. W. P. W. Pet. Co.'s No. 5, 14-27-28, abd 1247 ft. **North Belridge**—General's St. Helens 2, 12-28-20, lcn. **Richgrove**—Dilamar's Quinn 1, 15-25-27, pumping 20 bbls 2956 ft. **Stand**—Continental's KCL E-1, 17-30-26, sd 8574 ft. **Union Avenue**—Richfield's Union Avenue 1, 6-30-28, dr 5076 ft. **Wasco-Semitropic** — Continental's KCL A-3-8, 8-27-24, dr 12,897 ft; Seaboard-Associated KC 1 C-1, 27-27-24, redr 11,405 ft, td 12,778 ft. Standard's Mushrush 1, 7-27-24, dr 11,300 ft; KCL 8-B-1, 17-27-24, dr 12,161 ft. **Kings: Alpaugh**—Tri Counties' Olson 1, 10-23-22, sd 7669 ft. **Pyramid Hills**—Pyramid Prod. Co.'s Retherford 1, 27-24-18, sd 3090 ft. **Tulare Lake**—Athalie Irvine's No. 1, 11-24-20, dr 2208 ft. **Tulare: Alpaugh**—Sullivan & Youngdahl's No. 1, 33-23-23, sd 2732 ft. **Ducor**—Nelson & Davison's Muller 1, 1-24-27, dr 1400 ft. **Trico**—Caminol's A. O. G. 3, 29-24-24, dr 8303 ft. **Santa Barbara:** Douglas-Stratton's No. 1, 8-8-33, sd 6239 ft. Gaviota's Hollister 1, 35-5-33, sd 3215 ft. Barnsdall's Magenheimer 5, 9-8-32, sd 3035 ft; Pezzoni 1, 15-8-32, dr 1465 ft. Petrol's Magenheimer 5-11, 9-8-32, dr 4515 ft. J. E. O'Donnell's Helen 1, 8-7-33, dr 4010 ft. Continental's La Laguna 2, 25-8-31, rur. United Western's Bradley 1, 15-7-30, sd 3279 ft. Anacapa Oil's Lowe 1, co 2108 ft. Trans-Oceanic's Morrison 1, dr 3680 ft. **San Luis Obispo:** California Pet. Co.'s Job 1, 6-10-24, sd 2210 ft; Irons 1, 19-10-24, rur 1710 ft. Harry E. Lee's Defiance 1, 7-32-22, dr 206 ft. G. E. Renner's R. H. L. 1, 7-32-22, lcn. Western Plains' Bell 1, 7-31-21, sd 4010 ft; Bell 2, 2-32-21, sd 2620 ft. Loma Grande's Luis 1, 28-31-13, dr 700 ft. Hancock's Scherer-Dickes 1, 30-12-33, bailing 5593 ft. Vanguard's Clark 1, 26-27-14, dr 4951 ft. **Ventura:** High Mesa's Butcher 1, 16-4-22, co 1710 ft. Holly Dev. Co.'s Macrare 1, 27-4-23, sd 4786 ft. Commander's No. 7-F, 13-4-19, r 575 ft. Chas. R. McKinnis' Cosley 1, 14-4-19, sd 828 ft. Merchants' Cochrane 8, 1-4-20, dr 925 ft. St. Louis' Williamson 1, 1-4-20, co 420 ft. Texas Co.'s Shiells 135, 4-3-19, dr 1996 ft. Albatross' Scheiferle 1, 17-3-20, rig. Clipper's Calco 1, 17-3-20, rig. Texas Co.'s Yale Richardson 5, 13-3-21, dr 6493 ft. Section 20's No. 1, 20-5-19, wocs 2145 ft. Hardison & Temple's No. 1, 22-4-21, sd oih 656 ft. J. W. Martin's Arnett 1, 15-4-21, fsg 1230 ft. Stallings, Senter & Ahlburg's Stallings 1, 24-4-21, wo 1445 ft. Ventura Drilling's No. 1, 10-3-23, fsg 330 ft.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls—*barrels.*
br—*building rig.*
bs—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg—*fishing.*
ft—*feet*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper.*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so&g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

KANSAS

Barber—Pryor & Lockhart et al, Gant 1 "C," ne 5-31-13w, woc. **Barton**—Continental, Sin. Prairie, Pichner 1, se nw 23-16-11w, lcn. Carlock & Atlantic Refining Co., Demel 1, ne nw 30-17-13w, ur 12-in 827 ft. Long & Johnson, Eveleigh 1, sw ne 3-18-14w, rur. **Butler**—Fred Phillips, Hanshaw 1, nec se 32-27-3e, drlg 300 ft. Solomon & Alexander, Sawyer 1, sw nw sw 2-28-7e, drlg 225 ft. Pryor & Lockhart et al, Lietzke 1, nw sw nw 24-28-7e, drlg 2085 ft. Bowland & McCoy, Frankson 1, se sw 2-29-6e, sd 100 ft. **Cowley**—Ben Gralapp et al, Clark 1, nw ne 11-31-3e, drlg 1225 ft. Barnsdall Oil Co., Elliott 1, ne 5-31-5e, drlg 825 ft. McKnab, O'Neal 1, nwc se 27-32-3e, drlg 2725 ft. Milton et al, Hunt 1, sw ne 16-34-5e, sd 20 ft. **Geary**—Fowler & Tague et al, Aye 1, nw sw nw 10-12-8e, drlg 165 ft. **Graham**—Duwe & Farris & Atlantic Refining Co., Parker 1, c se sw 29-6-23w, rur. **Greenwood**—McGinnis et al, Smith-Jobes 3, nw ne ne 10-24-13e, woc 1638 ft. Nichols et al, Central Life Ins. 1, se sw 35-25-12e, rur. Fullerton et al, Bates 1, ne sw se 32-26-11e, spd & sd. Dunlap, Warren Mortgage 1, 4-28-10e, drlg 1585 ft. **Harvey**—Lanahan Drilling Co., Lagree 1, se se 4-23-3w, rig. **Marion**—Harwood, Kaufman 1, nwc se 27-17-4e, gs 1820-35 ft, Johnson Miltz 1, swc 24-17-4e, 6-in 1931 ft. **Meade**—Pacific Midwest Oil Co., Rexford 1, ne se sw 8-30-29w, sd 1350 ft. Cragin, Reeuscher & Turner, Adams 1, nwc se 22-34-30w, sd 200 ft, to rur. **McPherson**—Marylyn Oil Co., Dixon 1, nw ne nw 7-19-2w, sd 2155 ft. **Ness**—Carlock & Shaffer Inc., Smith 1, c sw se 11-17-25w, rig. Sinclair Prairie, McKinley "A" 1, sw nw 26-18-26w, drlg 4550 ft. **Ottawa**—Babcock, Copeman 1, c nl s½ s½ se 7-10-2w, sd 2220 ft. **Pratt**—Champlin Refining Co., Elliott 1, sw ne 26-27-14w, drlg 2465 ft. **Reno**—Scherzer, Krey 1, se sw 19-23-10w, mim. **Rice**—Watchorn O. & G. Co., Caldwell 1, ne se ne 29-20-9w, drlg 1895 ft. Gilmac Oil Co. et al, Malone 1, se sw nw 36-20-10w, lcn. **Rooks**—Producers Oil et al, Ham 1, sw nw 25-7-19w, sd 1800 ft. Shindhelm & Haynes, Dorr 1, se sw 13-9-16w, ur 5-in 3515 ft. **Russell**—Stearns, Stielow 1, nw nw 32-11-14w, drlg 3480 ft. **Saline**—Sullivan & Sidwell, Erickson 1, ne ne 28-16-3w, sd 1800 ft. **Sedgwick**—Hudson et al, Fulton 1, ne se 35-28-1e, sd 2355 ft. Crowe et al, Murphy 1, sw se 34-29-1w, rig. **Shawnee**—Edwards, Detrich 1, c nw se 21-14-15e, sd 1130 ft. **Stafford**—Stanoline, Curtis 1, sec 31-21-12w, drlg 3155 ft. Newbold & Springrose, Walker 1, nec sw 24-24-12w, sd 4089 ft. **Sumner**—Cameron & Spencer, Frey 1, nw 5-30s-1e, rur. Hapenney, Evers 1, se ne 27-31-2e, co 2030 ft. **Thomas**—Ramsey Petroleum Co. & Mabee, Ryan 1, c ne se 27-8-32w, drlg 875 ft. **Woodson**—Nathan et al, Ellis 1, nwc se 35-25-14e, sd 1552 ft.

SOUTH LOUISIANA

Acadia—Atlantic's Klumpp 1, northeast of Tepetate, 12-7s-2w, dr shale 6004 ft. **Avoyelles**—Magnolia's Bowden 1, Evergreen area, 7-2s-4e, dr shale 2908 ft. **Calcasieu**—Sun's Lutcher Moore 1, Luntia area, 12-8s-3w, dr shale 5008 ft. **Cameron**—Federal Royalty Co.'s State 1, Calcasieu Lake, 1-13s-9w, woc 310 ft. Humble's Hanszen 2, Chalkley area, 9-12s-6w, dr shale 10,128 ft. Union Sulphur's Miami Corp. 3, Willow Lake prospect, 33-12s-8w, dr shale 7387 ft. Pure's Calcasieu National Bank 2, Lowry area, 18-12s-4w, dr shale 5079 ft. **Jefferson Davis**—Continental's J. Sturdivant 1, South Roanoke, 36-10s-4w, dr shale 11,508 ft. **Lafourche**—Sun's Dibert Stark and Brown 1, Chacahoula dome, 70-15s-15e, flowing estimated 25 bbls per hour, ¼-in choke, 7253 ft. Texas Co.'s La Terre 1, Golden Meadows prospect, 1-20s-21e, dr shale 9609 ft. **Orleans**—W. T. Burton's State 1, in Lake Ponchartrain, 10s-13e, dr shale 8330 ft; same operator's Faubourgde Montelusin 2-B, 1, Lake Ponchartrain, 11s-13e, dr water sand 5231 ft. **St. James**—Continental's Colonial Sugars 1, Convent, 46-12s-5e, abn 9525 ft, salt. **St. John**—Shell's Godchaux Sugar 1, La Place, 97-11s-7e, setting csg 9494 ft. **St. Landry**—Herton's Thistlewaite Lbr. Co. 1, Beggs area, 60-4s-4e, dr shale 6019 ft. **St. Martin**—Shell's Jeanerette Lumber Co. 1, West Lake Verrett area, 14-14s-12e, abn 10,550 ft. Texas Co.'s St. Martin Land Co. 11, Henderson, 21-8s-7e, washing 6739 ft; same operator's State 6, Lake Mongouloui area, 10-10s-9e, dr shale 8001 ft. **Terrebonne**—Shell's Peters 1, south of Houma, 73-18s-18e, dr shale 10,119 ft.

NORTH LOUISIANA

Bienville—DeSoto O&G Co.'s Wm. Ashley 3, c nw se 16-16n-10w, rog. Mrs. B. A. Fleming 1, nw nw 18-16n-9w, sr 5402 ft. Producers O&G Co.'s Graves & Thomas 1, 23-15n-10w, mim. **Caddo**—Oils, Inc's A. Cazaux 1, sw sw 16-16n-13w, 10-in csg 300 ft, fsg 3500 ft. R. E. Allison et al's Ellerbe 2, ne ne 28-18n-14w, dr 1600 ft. J. Thomas Driscoll, Inc.'s Woolworth 1, se se 19-18-14, dk and mir. Superior Oil Corp. & F. W. Martin's Andrew Querbes 1, 37-17n-13w, dr 2300 ft. R. L. Bauman's Slattery 1, 35-18n-14w, set 13⅜-in surf csg 300 ft. **Caldwell**—Oakes et al's Kyles 1, sw ne 18-11n-3e, sd 470 ft. **Catahoula**—G. E. Foster et al's W. S. Peck 1, c s½ 39-10n-8e, dr 1540 ft. **Claiborne**—E. T. Oakes et al's Kilgore 1, ne se 28-21n-5w, elev 288 ft, 5¾ in csg 5290 ft, logged saturated lime 5297-5305 ft and 5307-12 ft, swabbing oil, td 5337 ft. J. N. Buchanan's Miller Est. 1, ne sw 11-20n-8w, rur. **De Soto**—S. D. Taylor's Barnhart 1, ne se 20-14n-12w, mim. Samuel S. Alexander's Stell A-1, ne ne 5-12n-16w, sd for water, td 1872 ft. Potter & Rubeling's Smith 1, sw se nw 6-12n-15w, mim. G. H. Collins et al's Joyner 2, sw ne 28-11n-12w, set 7-in csg 2892 ft, tested sw 3001 ft, pb to 2978 ft, tested sw, sd 3001 ft. Al Sutton et al (formerly Fuqua & Gray), Frost-Johnson 1, se se 25-11n-15w, woc surf cas. **Grant**—C. L. Thomson et al's Woodard 1, ne sw 10-6n-3w, top Wilcox 2867 ft, sd 4527 ft. C. R. Bowers et al's Harrison 1, ne sw 21-8n-5w, dr 1760 ft. **Madison**—Continental Oil Co.'s Singer Mfg. Co. 1, n½ ne nw 3-15n-11e, igneous rock 2227-2508 ft, dr 3816 ft shale. **Natchitoches**—Joe E. Popkins' Peavy-Wilson 1, nw nw 36-7n-9w, sd 300 ft. W. T. Ryan et al's Lambert 1, nw nw 4-8n-9w, sd 4189 ft. **Rapides**—J. J. Farrell's Certner 1, nw se 16-4n-1e, rur. E. F. Kalb et al's Lee Lbr. Co. 1, nw sw 9-5n-3e, spd and sd. **Red River**—Glassel & Whitehurst's LeLong 1, ne nw ne 25-12n-11w, sd 3113 ft. **Sabine**—W. L. McClanahan et al's Frost-Johnson 1, se ne sw 22-9n-13w, elev 196.2 ft, top Nacatoch 1531 ft, top Saratoga chalk 1578 ft, Annona chalk 1816-2041 ft, Austin chalk 2854-3007 ft, top Glen Rose 3286 ft, blew out gas, so 4745 ft, pb to 3050 ft, tested mud, sg, pb to 1750 ft, acidized, testing, old td 5709 ft. H. M. Sneed et al's Leone 1, nw se 8-7n-13w, rur. J. G. Sutton-Zwolle Oil Co.'s Bowman-Hicks 2, w½ sw nw 24-7n-13w, lcn. Albert Reich et al's Giaque 1, ne se ne 27-7n-14w, sd 4317 ft. F. W. Martin & Co.'s Sabine 2, c e½ ne 1, lcn. A. Boykin King's Sabine 1, c nw nw 19-7n-13w, sd 4517 ft, may deepen to 6000 ft; Sabine A-1, c w½ nw nw 19-17n-13w, lcn. Sabine 2, c sw nw 19-7n-13w, lcn. Zwolle Synd.'s Mansfield Hdw. Lbr. Co. 1, ne ne 8-7n-14w, dr plug in 5½ in csg set at 3830, swabbing. Tropical Oil Co.'s (was Quality Prod. Co.), Long Bell Lbr. Co. 1, se se 5-8n-13w, dr 2790 ft. **Webster**—W. M. Chambers' Thoms 1, se se 11-22n-11w, ru and sd. Magnolia's Pardee Co. 1, ne nw ne 17-23n-11w, elev 203 ft, top Blossom 2665 ft, tested 17 joints sw 16 min dst 2664-73 ft, top Pettit 5920 ft, logged good porosity so, sg, 5920-6025 ft, sr 5600 ft, swabbing after flowing 15 barrels oil, td 6025 ft. H. M. Branton 1, ne ne 6-22n-9w, rur. Bailey-Rosenberry 1, nw se 29-23n-9w, lcn.

MICHIGAN

Allegan—O'Brien's Raber 1, 36-2n-13w, so 1475-76 ft, sd 1690 ft. Leighton's Wiggins 1, 15-4n-11w, rig. Shimmel's Saugtauck 1, 28-3n-15w, sd 300 ft. Montigel's Smith 1, 9-1n-12w, rig. Leonard Oil's Koning 1, 35-3n-16w, dr 150 ft. **Arenac**—McHugh's Stevens 1, 8-19n-5e, dr 790 ft. Hill's Reinhart 1, 25-19n-5e, dr 1400 ft. **Barry**—Collin's Simmons 1, 3-2n-9w, dr 1540 ft. **Bay**—American Drilling Co.'s Hecht 1, 10-15n-3e, lcn. **Calahoun**—Mar-Cal's Woods 1, 13-2s-6w, rust. Verona Crude's Fruin 1, 29-1s-7w, ur 1940 ft. **Clinton**—McDonald's Koeppen 1, 19-6n-3w, dr 900 ft. **Gladwin**—Sun Oil Co.'s Reid 1, 18-19n-2w, rig. Brehm's Kitchen 1, 20-19n-1w, sd 1405 ft. Smith Pet. Co.'s Nash 1, 28-20n-2w, sd 1450 ft. **Gratiot**—Chartiers' Duffo 1, 6-9n-3w, rust. Michigan Chemical Co.'s Fee 9, 24-12n-3w, 5 in csg 3905 ft. **Huron**—Leonard Prospecting's Milling Co. 1, 10-16n-15e, dr 2819 ft. **Isabella**—Keeler & Chatham's Stevens 1, 13-16n-6w, dr 690 ft. **Kalamazoo**—Premier's Munson 1, 9-2s-12w, dr 100 ft. **Kent**—MacCallum's Story 1, 32-7n-12w, dr 900 ft. **Lapeer**—Hether & Appel's Foster 1, 26-9n-12e, dr 1450 ft. **Mackinac**—Van Kuren's Hiawatha Club 2, 27-44n-9w, sd 610 ft. **Midland**—Sun Oil Co.'s State B1, 9-15n-1w, fsg 4100 ft for bailer, td 5039½ ft. Stork Oil Co.'s Steger 1, 23-15n-2e, dr 200 ft. **Missaukee**—Teater's Gray 1, 32-23n-5w, sd 4190 ft. Moser Oil Co.'s Scherenhelm 1, 36-23n-7w, fsg 1415 ft. **Montcalm**—Rex's Cheney 1, 11-9n-5w, dr 1260 ft. Taggart, Inc.'s Jacks 2, 7-12n-9w, dr 3260 ft. **Ogemaw**—Molloy's Morrison 1, 29-23n-3e, rig. Pure Oil Co.'s State D1, 5-23n-2e, dr 540 ft. **Osceola**—Fortney's Beall 1, 25-18n-9w, dr 390 ft. Champion's Ealy 1, 30-20n-8w, dr 560 ft. **Otsego**—Summer's Geraldine 1, 28-30n-3w, dr 720 ft. **Ottawa**—Sommerville's Bowman 1, 19-7n-14w, dr 1430 ft. Carscallen's Copp 1, 9-8n-15w, dr 900 ft. **Roscommon**—Kirkham's Miller 2, 6-22n-2w, dr 2340 ft; St. Helen 1, 36-22n-2w, dr 990 ft. Sun Oil's Hanson 1, 2-23n-2w, dr 2940 ft. **Shiawassee**—Buzard's McCall 1, 11-6n-3e, dr 1650 ft. **Van Buren**—Whitehill's Webster 1, 35-2s-16w, Traverse 1080, water 1100, dr shale 1490 ft. Obenauer's Vought 1, 32-4s-12w, lcn. Gulf's Iodent 1, 25-4s-15w, dr 610 ft. **Wayne**—Bellville's Scheffler 1, 26-3s-8e, sd 2946 ft.

MISSISSIPPI

Calhoun—L. C. Lucas' B. C. Boland 1, sw sw 9-22n-9e, spd & sd. S. & O. Properties Inc.'s G. C. Conner 1, se ne 12-24n-8e, sd 2120 ft. **Claiborne**—Claiborne County Dev. Co.'s Ruth Hayden 1, s½ se 55-11n-2e, rur to deepen, td 2950 ft. **George**—Cleve Love et al's J. J. Newman Lbr. Co. 2, c sw 9-1s-8w, elev 111 ft, 10-in csg 1374 ft, top Het 1382 ft, dr 4600 ft last report. **Hinds**—Cleve Love et al's Montgomery 1, sw se se 28-6n-4w, lcn. S. F. Johnson 1, ne se 29-6n-1w, elev 343 ft, top black shale 3040 ft, top chalk 3097 ft, top Eutaw 3617 ft, top Red Beds 3657 ft, 7-in csg 3355 ft, sd 3707 ft. Progressive Realty Co. 1, se sw 35-6n-4w, top Wilcox 2750 ft, ran electrical tester, sd 6596 ft. G. Jeffries' Gaddis Farms Inc. 1, nw se 26-7n-4w, sd 3253 ft, sandy shale. **Lamar**—Southern Mississippi Pet. Corp.'s Morris 1, nw se 4-2n-14w, elev 332 ft, top Het 1138 ft, 10-in csg 1144 ft, top Vicksburg 1615 ft, top Minden lime 2123 ft, top Wilcox 2735-53 ft, sd 3029 ft (Wilcox). **Montgomery**—Dr. T. A. Chichester et al's E. C. Mitchell 1, se nw sw 30-30n-7e, dk. **Pontotoc**—Waldrop, Melvin & Waldrop's Bray 1, sec n½ sw 17-11s-1e, set surf csg 166 ft, sd 280 ft shale. **Simpson**—Goodwill O. & G. Co.'s Berry 1, se sw 33-2n-4e, elev 307 ft, sd 2810 ft gray gumbo. Cleve Love et al's N. E. Garner 1, 1-10n-17w, spd & sd. **Yalabousha**—Acme Holding Co.'s S. D. Boyle 1, nw nw 33-25n-7e, elev 415 ft, sd 2810 ft.

OKLAHOMA

Choctaw—Ross et al, Hardy 1, sec nw 21-7s-15e, sd 972 ft. **Coal**—Carter, Mote 1, c e½ sw nw 19-2n-9e, drlg 6610 ft. **Comanche**—Eldridge, Aetna Life 1, sw se sw 2-1n-10w, drlg 795 ft; Roach, Green 1-A, sec sw 2-1n-13w, sd 765 ft. **Creek**—Burke-Greis, Goodman 1, nec sw 20-14n-7e, sd 3025 ft. **Garfield**—I.T.I.O., Kichin 1, c se se 17-22n-5w, wocs 6116 ft. Champlin Refining Co., Boehm 1, swc ne 4-24n-8w, td 6650 ft, rng 9-inch csg. **Grady**—Carter Oil Co. et al, Smith 1, c se sw 26-5n-8w, ru. **Hughes**—F. W. Cooper Drlg. Co., Samuel 1, nw se ne 19-6n-8e, mit. City of Holdenville, Fairgrounds 1, sec 13-7n-8e, sd 1200 ft. Homer Doup et al, Bond 1, nec sw 7-7n-9e, drlg 1300 ft. Amerada et al, Conard 1, ne nw sw 33-10n-10e, sd 4068 ft. **Kay**—Crawford et al, Boehl 1, sec nw 34-27n-2w, ru. **Kiowa**—Anderson & Prichard, School Land 1, c se se se 14-6n-17w, woc, td 2027 ft. R. L. Emerson, Hancock 1, sec nw 26-6n-15w, drlg 75 ft. **Kingfisher**—Hollenback & Haley, Zerger 1, c se sw 5-18n-6w, sd 2430 ft. **Lincoln**—British American, Markwell 1, c e½ e½ ne 26-12n-4e, drlg 5460 ft. OK-Texas Co., Black 1, sec 31-16n-6e, sd 3284 ft. **Love**—Sinclair Prairie, Peabody 1, nec 35-6s-2w, sd 6970 ft, so. **Noble**—Hollenback et al, Mathews 1, c sw nw 9-20n-1e, drlg 4370 ft. Superior Oil Co., Loula 1, ne se sw 16-22n-1e, bailing, otd 4790 ft. **Pawnee**—Ed Kelly, Hill 1, swc se 1-21n-5e, sd, rig. **Pittsburg**—Supreme Oil Co., Stevenson 1, swc se 27-3n-14e, drlg 1085 ft. **Pontotoc**—Moore, Payne 1, se nw se 16-4n-4e, so, sd 997 ft. **Pottawatomie**—Speers, Vinson 1, sw nw sw 29-8n-5e, drlg 3545 ft. Hall & Briscoe, Merkle 1, nwc se 32-8n-5e, rur. Geo. L. Pace et al, Riley 1, nec se 2-9n-3e, drlg 3185 ft. **Seminole**—Boettcher O&G, Morgan 1, se ne nw 8-5n-7e, drlg 2355 ft. **Stephens**—Mitchell et al, Westfall 1, sec 33-2n-4w, machine. **Tillman**—Smith, Hammel 2, ne nw nw 6-5s-15w, drlg 2290 ft. **Washita**—Continental, Proctor 1, c nw¼ 28-10n-20w, drlg 3675 ft.

EAST TEXAS

Anderson—Jas. H. Gardner et al's G. W. West 1 (154-ac), L. Hopkins sur, 2½ mi se Denison Springs, elev 557 ft, Pecan chalk 4583-4956 ft, top Austin chalk 5540 ft, sd in sw sand 5750 ft. Roeser-Pendleton, Inc.'s V. W. Bowyer 3 (200-ac), E. Ritter sur, Cayuga field, elev 317 ft, td 7682 ft, sdtr at 5716 ft, reaming new hole 6352 ft. **Cherokee**—Bunn Drlg. Co. et al's Callie Bounds 2 (95.9-ac), W. H. Walters sur, 2½ mi se Lone Star, elev 346 ft, cur fault 3535-45 ft, Austin chalk 3787-3969 ft, top Woodbine series 3969 ft, td 4085½ ft, sd to pump; Boling 1, W. H. Walters sur, 2½ mi se Lone Star, dr 1270 ft. **Dallas**—Mauldin Oil Co.'s W. E. Howell 1 (107-ac), S. Layton sur, 8 mi east Grapevine, sd 1650 ft. Plaza Oil Co.-W. A. Brooks, Jr.'s B. J. Davidson 1 (75-ac), J. D. Merchant sur, base Woodbine 1970 ft, top Paluxy 2700 ft, sd 3528 ft. **Freestone**—G. Shyrock et al's M. S. Clark 1 (122-ac), M. de Cantona sur, 8 mi nw Teague, elev 521 ft, dr 1760 ft. **Gregg**—Humble & Gulf's P. Horton-Dickson 1, H. G. Hudson sur, Trinity test, 3 mi e of East Texas field, elev 275 ft, Pecan chalk 2261-2752 ft, Austin chalk 3308-33 ft, Georgetown lime 3333-4107 ft, top first anhydrite stringer 5596 ft, dr 6440 ft. **Henderson**—A. R. McElreath-Suggett & Arch Lowrance's T. L. Dean 1 (35-ac), C. M. Walters sur, 1 mi w Athens, elev 490 ft, Pecan chalk 2518-2640 ft, top Austin chalk 3445 ft, top Woodbine 4336 ft, dry and abd 4660 ft. Humble's J. J. Hearne 1 (200-ac), W. K. Newell sur, elev 327 ft, Pecan chalk 1684-1900 ft, Austin chalk 2440 ft, top Woodbine series 2996 ft, oil pay 3051-54 ft, td 3055 ft, flowed 87 bbls, 7 percent bs&w initial, 3/16-in choke; Hearne 2, top Austin chalk 2436 ft, dr 2870 ft. Peyton Bros. et al's W. W. Carter-Tarkington 2, W. K. Newell sur, elev 326 ft, rig. The Texas Co.'s R. L. Tarkington 1 (50-ac), W. K. Newell sur, elev 301 ft, Pecan chalk 1624-1881 ft, Austin chalk 2440-2650 ft, top Woodbine series 2965 ft, gas pay 3008-32½ ft, tested gas and complete. **Houston**—Humble's J. A. Hill 1 (161-ac), blk 4, J. L. Reviere sur, A-49, Navarro Crossing pool, Pecan chalk 4262-4370 ft, dr 5870 ft. Sun Oil Co.'s Dailey Bros. 2 (1366.7-ac), J. G. Thompson sur, A-1021, lcn. **Kaufman**—Sam Knoerr et al's J. P. Hunter 1 (17-ac), P. Walker sur, 5 mi s Terrell, dk. W. G. Martin et al's fee 2 (40-ac), W. F. C. Butler sur, 2½ mi ne Kemp, sd 2072 ft. W. S. McGee et al's Pritchett 1 (15-ac), J. Hendricks sur, 7 mi w Mabank, Austin chalk 2092-2470 ft, top Woodbine 2994 ft, sd 3104 ft. J. F. McLaughlin et al's Wood-Nash 1, J. C. Cortez sur, ¾ mi se Scurry, dk. **Lamar**—Dahl Bros. & Barr's Lewis-McCuistion 2 (10-ac), R. Russell sur, 1 mi ne Paris, elev 523 ft, rig. **Leon**—Lone Star Gasoline Co.'s Steve Pate 1, D. J. Haskins sur, 8 mi se Buffalo, dr 2300 ft. T. J. Tucker et al's Sam Vane 1 (60-ac), Jas. Webb sur, 4½ mi se Keechi, sd 100 ft. Wynne Drlg. Co.'s H. L. Brown-Sinco 1 (43½-ac), Joseph Brown sur, ¾ mi nw Keechi, cem csg 620 ft. **Limestone**—J. A. Johnston et al's E. M. Speight 2 (115-ac), A. Varella sur, elev 400 ft, Austin chalk 2690-3047 ft, top Woodbine 3671 ft, dry and abd 3701 ft. **Navarro**—Mrs. Jane Robinson et al's Fortson 1, Eli Smith sur, 5 mi ne Corsicana, elev 345 ft, Austin chalk 1346-1585 ft, top Woodbine 2185 ft, sd 2765 ft. Howze Oil Co. & Cochran's J. A. Jackson 1, R. C. Doon sur, ½ mi e Powell, elev 372 ft, Austin chalk 2303-2640 ft, top Woodbine series 2955 ft, top sand 2965 ft, dry and abd 3215 ft. **Rains**—McKinley & Hastings' McTaggart 1 (21-ac), B. Miller sur, 1 mi w of Emory, lcn. **Red River**—Daniels et al's J. J. Gaston 1 (657½-ac), J. Guest sur, 2 mi s Detroit, elev 468 ft, dr 1020 ft. Bentley & Shappard's Southern Pine Lumber Co. 1, Geo. S. Parks sur, rig. Watters et al's J. Phamplin 1, Wm. Moore sur, 3 mi se Kanawha, elev 470 ft, Pecan chalk 78-85 ft, top Red Beds 450 ft, sd 555 ft. C. E. Whitehead et al's R. H. Ringwald 1 (56-ac), A. Moore sur, 1 mi nw Manchester, sd 630 ft. **Rusk**—Thos. L. Johnson-Drake Drlg. Co.'s R. L. Needham 1 (136-ac), Jessie Chambers sur, 3 mi sw Lanesville, elev 319 ft, dk. **Smith**—Combest, Wadsworth & Cox's D. Kendall 1, John Williams sur, 1¼ mi se Jamestown, sd 3226 ft. **Van Zandt**—F. A. Richardson et al's B. C. Dodd 1 (180-ac), T. W. Hutchinson sur, 2 mi s Grand Saline, elev 427 ft, sd 4278 ft. W. S. King et al's Edna Watson 1, M. G. Whittaker sur, 5 mi s Grand Saline, elev 489 ft, dr 2010 ft.

EAST TEXAS BORDER COUNTIES

Harrison—W. F. Bridwell's Platt 1, F. C. Baker sur, owdd 5167 ft. **Marion**—Vestal et al's (was Tom Bell) Carrie Moseley 1, D. Lane sur, ran electrical tester, woc td 2768 ft. **Panola**—Texas Co.'s Claude Adams 1, Thos. Cox sur, 13⅜-in csg 579 ft, 9⅝-in csg 5940 ft, elev 287 ft, top lower Marine 7792 ft, trying to dislodge drill pipe, td 11,303, Permian

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salt. Walters et al's Pomplin 1, W. Moore sur, set 12½-in csg 68 ft, sd 220 ft. Petroleum Heat & Power Co.'s Frost Lbr. Co. 1, Jno. H. Gibson sur, lcn. J. W. Bird 1, Geo. Gallasty sur, lcn. **Sabine**—Hugo Allen et al's (was H. R. Smith), Mrs. Jenny Brook 1, Isaac Low sur, 7 mi ne Hemphill, 360 ac, strong sg 5654 ft, fsg for drill stem, td 5654 ft. **Shelby**—C. L. Cope's Pickering Lbr. Co. 1, English sur, ru & sd, Shelby Oil Co.'s Windham 1, A. K. English sur, cored saturation 3397-3422 ft, testing 3422 ft; J. C. Windham 1, nwc Shelbyville townsite, lcn. A. R. Blount's Ethel Lovett 1, blk 55, Shelbyville townsite, lcn. Redditt & Gray's Pickering Lbr. Co. 2, sec 237.8-ac tract, P. J. Loggins sur, 7-in csg cemtd at 2920 ft, sd 4225 ft. Richards & Holloway's Ashberry 1, G. W. Mitchell sur, owdd, td 3405 ft.

WEST TEXAS

(This report is confined to the north portion of the Permian basin.)

Andrews—Fuhrman Pet. Corp.'s G. O. Ashton 1, c se se PSL sec 12, blk A-42, elev 3181 ft, top anhydrite 1640 ft, top Yates 2820 ft, top lime 4070 ft, dr 4325 ft. S. H. Forgeron-Olson Drlg. Co.'s Lockhart- Brown 1, c ne ne PSL sec 20, blk A-41, elev 3248 ft, top anhydrite 1660 ft, salt series 1690-2720 ft, top brown lime 3995 ft, used 2000 gals acid 4483 ft, dd to sul w 4913-81 ft, pb to shoot. Mon-

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tecito Oil Corp.-Rhodes et al's E. Cowden-Sinco 2, near sw ne nw T&P sec 1, blk 44, T-2-N, top anhydrite 1650 ft, cem csg 4010 ft, td 4025 ft. Sinclair Prairie's Emma Cowden 3, nw nw ne T&P sec 1, blk 44, T-2-N, elev 3168 ft, top anhydrite 1620 ft, top Yates 2730 ft, top brown lime 3780 ft, pay 4173-4218 ft, flowed 248 bbls oil 12 hrs nat'l, testing. J. W. Tripplehorn et al's M. A. Thornberry 1, nec PSL sec 2, blk A-42, sd 120 ft. The Texas Co.'s University 1-H, nw ne sw sec 4, blk 14, rig. H. C. Wheeler et al's Farmers State Bank (Carlton) 1, c se sw PSL sec 18, blk A-36, sd 150 ft. **Cochran**—Magnolia's Della Wright 1, nec labor 7, league 96, Mills C.S.L. sur, dr 2188 ft. The Texas Co.'s D. S. Wright 1, near swc labor 23, league 115, Potter C.S.L. sur, elev 3791 ft, top anhydrite 2285 ft, top brown lime 3670 ft, top solid lime 4000 ft, show water, dr 4940 ft. **Dawson**—Ray Albaugh et al's Dewey Hogg 1, c se se T&P sec 17, blk 34, T-4-N, elev 2895 ft, top anhydrite 1550 ft, sd 4125 ft. **Gaines**—Atlantic Ref. Co. et al's Parker Bros. 1, c se ne W. T. Ry. sec 264, blk G, rig. R. C. Conkling, J. M. White et al's King 1, nec sec 6, league 305, Dawson C.S.L. sur, lcn. Osage Drlg. Co.-A. S. Everest's B. E. Miller-Sun 1, c sw ne W. T. sec 281, blk G, elev 3435 ft, top anhydrite 2275 ft, salt series 2320-3230 ft, top Yates 3390 ft, top brown lime 4440 ft, dry and abd 5507 ft. **Garza**—Gulf Oil Corp.'s S. P. Swenson Cattle Co. 1, c nw H&GN sec 25, blk 2, Ordovician test, elev 2274 ft, trace oil 6277 ft, dr lime 7408 ft. **Hockley**—Gulf Oil Corp.'s Mallett L&C Co. 2, swc labor 25, league 34, Concho C.S.L. sur, elev 3521 ft, top anhydrite 2135 ft, top brown lime 3850 ft, top solid lime 4210 ft, first oil pay 4975-85 ft, sul w 5090 ft, pb to 5070 ft, shot 250 qts nitro 4985-5060 ft, flows by heads. Richardson Oils, Inc.'s Slaughter 2, labor 58, league 39, Maverick C.S.L. sur, elev 3551 ft, top anhydrite 2192 ft, top Yates 2720 ft, top brown lime 3760 ft, top solid lime 4100 ft, pay 4933-89 ft, flows 100 bbls daily. Snowden & McSweeney Co.'s Alex Slaughter 1, nwc labor 74, league 35, Zavalla C.S.L. sur, dr 3115 ft. Stanolind's Alex Slaughter 2, swc labor 75, league 37, Zavalla C.S.L. sur, elev 3499 ft, top anhydrite 2218 ft, top Yates 2780 ft, top brown lime 3790 ft, top solid lime 4140 ft, oil pay 4957-5038 ft, used 9000 gals acid, testing. The Texas Co.'s Bob Slaughter 3, nwc labor 66, league 39, Maverick C.S.L. sur, top anhydrite 2180 ft, top salt 2270 ft, top Yates 2770 ft, dr 4202 ft; Mallett C. & L. Co., 1-B, swc labor 1, league 52, Scurry C.S.L. sur, elev 3540 ft, rig. **Kent**—B. Dolman e al's C. V. O'Keefe 1, ne ne nw H&GN sec 50, blk 1, sd 125 ft. **Lynn**—J. L. Baldridge et al's Alamo Lumber Co. 1, ne sw sw HE&WT sec 151, elev 3267 ft, top anhydrite 2130 ft, top Yates 2900 ft, top St. Andres 4170 ft, re-cem csg 4450 ft. **Martin**—T. G. Shaw Oil Corp.'s H. N. Wilkinson 1, ne ne se sec 35, blk A, Bauer-Cockrell sur, sd 560 ft. **Yoakum**—Aloco Oil Co.'s W. N. Willard 1, nec nw¼ sec 741, blk D, lcn. Honolulu Oil Corp.'s R. M. Kendrick 1-M, sw ne sw sec 825, blk D, rig. Magnolia's J. H. Lynn 1, c se ne sec 770, blk D, elev 3644 ft, top anhydrite 2170 ft, top Yates 2967 ft, top brown lime 4040 ft, top solid lime 4500 ft, dr 4905 ft. H. K. Riddle-S. C. Yingling's N. Barrier-Gulf 1, c ne se sec 6, blk D, J. H. Gibson sur, elev 3564 ft, top anhydrite 2640 ft, top Yates 3440 ft, dr 4370 ft.

WEST TEXAS

(This report is confined to the south and east portion of the Permian basin and the Delaware basin).

Brewster—G. H. Storey et al's J. P. Wilson 1, c se nw T. & St. L. sec 3, blk 212, elev 3609 ft, sd 2545 ft. H. D. Wilcox et al's W. H. Kokernot 1, nw sw sec 12, blk C, J. V. Massey sur, sd 1871 ft. **Coke**—Barnett Pet. Corp.'s J. E. Mims 1, sec T&P sec 39, blk W, elev 2352 ft, sd 1861 ft. **Crane**—Ruston L. Ardrey, Tr.'s J. B. Tubb 1-a, swc PSL sec 20, blk B-32, dr 3270 ft. Gulf's M. B. McKnight 4, c ne se PSL sec 3, blk B-21, elev 2701 ft, top Simpson 6160 ft, tested water in Ellenberger 6558 ft; University-Lassiter 2-B, swc sec 27, blk 30, elev 2596 ft, top anhydrite 1075 ft, so&g 3010-30 and 3097-3113 ft, td 3142 ft, shot 430 qts 3008-3135 ft, flowed 236 bbls 31.1 gravity oil 6 hrs, fsh sand pump; W. N. Waddell et al 9, c ne ne PSL sec 7, blk B-27, rig. Magnolia's University 1-6, se sec 6, blk 30, cem sur csg. **Crockett**—Will Ohlhausen et al's J. W. Owens 1, sd 1936 ft. **Culberson**—J. E. Fitz-Patrick et al's Wm. Cameron & Co. 1, c nw nw PSL sec 24, blk 81, sd 945 ft. Preston W. Lewis et al's Nieuhaus 1, se se ne PSL sec 13, blk 109, top Delaware lime 1178 ft, sd 2502 ft. Harry J. W. Nieuhaus et al's C. M. Caldwell 1, se nw PSL sec 15, blk 109, elev 3878 ft, top Delaware lime 1165 ft, top sand 1215 ft, sd 2500 ft. L. G. Sheddan et al's S. J. Isaacs 1, center PSL sec 25, blk 52, sd 280 ft. **Jeff Davis**—H. F. Wilcox O&G Co.'s Jones-Coffield 1, nec H&TC sec 121, blk 4, elev 4537 ft, sd 3747 ft. **Ector**—Bert Fields-Ben Rogers et al's R. H. Speer-Owenwood 1, sw nw ne T&P sec 6, blk 44, T-2-S, sd 250 ft. Sinclair Prairie Oil Co.'s Paul Moss 2-B, swc T&P sec 40, blk 44, T-2-S, elev 3050 ft, top anhydrite 1390 ft, top lime 3570 ft, top sul w 4162 ft, sd 4177 ft. **El Paso**—Tri-State Oil Co.'s Kinkel Bros. 1, nec sec 237, S. F. No. 7232, elev 3977 ft, sd 3571 ft. **Fisher**—Forest Dev. Corp.'s W. E. Morrow 1, c nw nw H&TC sec 48, blk 2, elev 2028 ft, run csg, td 4425 ft. Daube Bros. et al's R. S. Hardy 1, near c sw sw H&TC sec 49, blk 2, so&g 3717-19 ft, sd 3731 ft. Owens-Snebold Oil Corp.-A. C. Varner's J. H. Milsap 1, swc w½ ne H&TC sec 61, blk 1, dr 2565 ft. T. G. Shaw Oil Corp.'s J. B. Stribbling 1, c se se H&TC sec 110, blk 3, elev 2113 ft, top red shale 2130 ft, base Coleman Junction 3473 ft, top Sedgwick 3540 ft, top Noodle Creek 3848 ft, dry and abd 4500 ft. **Tom Green**—Spinner Oil Co.-H. L. Fannin's B. Reed 1, sub-div 39, Mayson-Perry sur, trace gas 4475-95 ft, dr 5120 ft. J. B. Watson etal's Llano 1, sec 16, Llano C.S.L. sur, dr 395 ft. **Howard**—S. S. Owens et al's D. S. Wright 1, nw se se T&P sec 33, blk 33, T-3-N, elev 2747 ft, sd 1378 ft, Ward Powell et al's Guitar 1, c ne sec 17, blk A, Bauer-Cockrell sur, elev 2508 ft, top anhydrite 1195 ft, top salt 1255 ft, hfw 2965-70 ft, sd 2996 ft. **Hudspeth**—Haymon Krupp Oil & Land Co.'s K. S. Briggs 1, nwc T&P sec 24, blk 73, Tsp. 7, elev 4016 ft, trace gas 4393 ft, ur 4390 ft, td 4395 ft; S. J. Thaxton 1, near sec ne se T&P sec 34, blk 74, Tsp. 6, top gray lime 4580 ft, dr hfw 4835 ft. **Loving**—Argo Oil Corp.'s T&P Land Trust 1, se se sw T&P sec 17, blk 55, Tsp. 1, elev 3097 ft, top Delaware sand 3926 ft, pay 3945-84 ft, shot 130 qts 3945-75 ft, testing. T&P Land Trust 1-B, nwc T&P sec 21, blk 55, Tsp. 1, elev 3084 ft, top anhydrite 1307 ft, top Delaware lime 3939 ft, top sand 3960 ft, dry and abn in w 4061-4165 ft. **Menard**—Lee Pet. Co.-C. D. Hagerty's Jas. Calian 1, swc e½ of J. M. Franz sur, sec 36, elev 2026 ft, cem 5½-in csg 1200 ft, td 1270 ft. **Nolan**—Frank Oyster-Ajax Drlg. Co. et al's E. H. Withers 1, c sw T&P sec 65, blk 21, elev 2323 ft, sd 4508 ft. P. G. Smith et al's E. E. Adrian 1, near c sw T&P sec 43, blk 20, lcn. Union Oil Co.'s (Nevada), J. D. Pepper 1, nec T&P sec 57, blk 21, lcn. **Pecos**—Cardinal Oil Co.'s White-Baker 2-A-37, ne ne nw T. C. sec 37, blk Z, show gas, dr 1670 ft. Cox & Moore's White-Baker 1, c sw se T. C. sec 43, blk Z, dr 630 ft. J. N. Gregory et al's O'Neill-Humble 1-a, south cor n¼ H&GN sec 74, blk 10, dr 1030 ft. Geo. J. Greer et al's Price Est. 1, nec H&GN sec 3, blk 12, elev 2279 ft, dr 610 ft. Humble's A. H. Robertson 1, c nw ne T. C. Ry. sec 27, blk OW, dk. H. H. Sides et al's Blackstone-Slaughter 1-a, near sec T. & St. L. sec 25, blk 130, sd 1850 ft. Stanley A. Thompson et al's Elsinore Cattle Co. 1, se se GC&SF sec 53, blk D, elev 2938 ft, fsh 7275 ft. E. M. Thomasson Prod. Co.'s J. Nations 1, sec 1, blk 105, W. P. Howard sur, dr 85 ft. Union Oil & Mining Co.'s First Nat'l Bank 1, near nec H&GN sec 6, blk 9, elev 2410 ft, sd 1760 ft. **Presidio**—Brite Production Co.'s L. C. Brite 1, ne¼ GH&SA sec 113, blk 12, sd 5427 ft. **Reeves**—Frankley & Rice's W. A. Tunstill 1, ne ne nw T&P sec 10, blk 56, Tsp. 2, elev 2906 ft, top Rustler 190 ft, dr 1595 ft. Lagoki Oil Co.'s Richards-Shaw 1, c n½ nw PSL sec 16, blk 59, dr 1030 ft. Ohio Oil Co.'s Popham L&C Co. 1, nw T&P sec 18, blk 54, Tsp. 10, elev 3623 ft, sd repairs 3200 ft. **Reagan**—Thomas Drlg. Co.-E. H. Van Patton's J. O. Carr-Sun 1, near c ne sec 4, H. N. Hines sur, elev 2638 ft, top lime 2450 ft, dr 2630 ft. Culbertson & Irwin, Inc.'s J. F. Nunn-Standard 1, c ne nw L&SV sec 26, blk B, elev 2668 ft, top anhydrite 1240 ft, dr 2165 ft. **Runnels**—John Castor, A. E. Koerner and H. B. Goodrich's J. C. Beddo 1, sub-div 41, T. T. Williamson sur No. 15½, lcn. J. W. McLean et al's E. H. Pflueger 1, Asa Clark sur, A-506, fsh 1545 ft. Stephenson & Jackson's W. J. Fowler 1, near ne ne sw E. T. Ry. sec 150, sd 1355 ft. **Schleicher**—J. M. Cooper-Cardinal Oil Co.'s Bert Page 2, c ne sw GH&SA sec 40, blk L, elev 2289 ft, top lime 5320 ft, tested 9,500,000 ft wet gas 5441-5501 ft, sd, may dd. H. P. Opp et al's J. T. Jackson 1, nw ne T. C. sec 41, blk LL, elev 2353 ft, sd 100 ft. **Scurry**—H. H. Coffield & Guthrie, Inc.'s E. E. Spears 1, nw nw sw H&TC sec 130, blk 97, elev 2294 ft, top lime 1512 ft, show oil 3107 ft, sul w 3160-75 ft, sd 3375 ft. P. G. Moran et al's F. W. Hardee 1, nwc H&TC sec 99, blk 97, sd 1000 ft. S. B. Roberts & Co.'s C. M. Welborn 1, c w½ sw H&TC sec 146, blk 25, sd 2980 ft. **Sterling**—John W. Sward et al's T. G. Brennand 1, se se ne H&TC sec 107, blk 2, elev 2535 ft, top anhydrite 918 ft, top Yates 1028 ft, top brown lime 1746 ft, top solid lime 1820 ft, sd 3011 ft. **Stonewall**—Gen'l Crude Oil Co.'s J. D. Smith 1, sec H&TC sec 371, blk 2, elev 1958 ft, base red beds 2115 ft, top Dothan 3530 ft, top Noodle Creek 3640 ft, top Saddle Creek 3813 ft, ur, td 4922 ft. Stonewall Oil Co.'s Ima Harrison 1, nw ne nw H&TC sec 294, blk D, lcn. **Sutton**—A. A. Basse-S. J. Sackett et al's W. A. Miers 1, c ne TW&NG sec 54, blk 14, lcn. **Terrell**—Schermerhorn Oil Corp.'s H. P. Allison 1, c se¼ sec 22, blk B-2, CCSD&RGNG sur, elev 2649 ft, top Rustler 710 ft, top Blaine 1230 ft, dr 1515 ft. **Upton**—White & Wilson's Webb 1, sw se ne CCSD&NGNG sec 176, blk E, lcn. **Ward**—J. E. Fitz-Patrick, Frank T. Pickrell et al's H. B. Carr 1, c w¼ n¼ of H&TC sec 125, blk 34, elev 2645 ft, top Rustler 705 ft, top lower salt 3575 ft, base salt 4813 ft, top Delaware lime 5055 ft, top sand 5101 ft, show gas 5101-52 ft, fsh tools, est 500,000 ft gas; F. I. Dyer 1, w¼ n¼ H&TC sec 135, blk 34, elev 2709 ft, top Rustler 695 ft, base salt 3845 ft, top Delaware lime 5081 ft, sd 5085 ft. Mid-Continent Pet. Corp.'s Geo. Sealy-Magnolia 1, se se sw G&MMB&A sec 47, blk F, rust, td 2680 ft. **Winkler**—Richardson Oils, Inc.'s J. M. Bashara 1-A, sw sw se PSL sec 22, blk 77, top anhydrite 755 ft, dr 770 ft.

SOUTH TEXAS

CORPUS CHRISTI TEXAS

Bee—Pettus' Ray 1, Mangum sur, lcn. **Brooks**—Stutenroth's Singer 1, sur 312, dr 500 ft. **Calhoun**—Hiawatha's Roemer 2, Ogsberry sur, dr 7720 ft. **DeWitt**—Hines' Boothe 1, Swindle sur, sd 3505 ft. **Goliad**—Sun's Shaper 1, Payne sur, dr 6000 ft. **Hidalgo**—Harding's Card 1, Hidalgo Canal Co. subd, dr 4200 ft. Phillips' Flores 1, por 39, dr 7900 ft. Smith's Fairbanks & Young 1, por 46, still sd 2550 ft. Wheelock & Collins' Temple 1, between Llano Grande & La Blanca grant, sd 6589 ft, acct high wtr. **Jim Wells**—Gulfboard-Bennett's Forry 1, La Vaca gr, sp. Howell's Stillwel 1, La Vaca gr, testing oil sand topped 5274 ft. Humble's Belitz 1, sur 202, prep sp; True 1, Garza gr, cor 4100 ft. Magnolia's Garcia 1, La Anima Sola gr, fsg 5449 ft, last rept. Shell's Blucher 1, Best sur, sd wo repairs, 7003 ft. Smith & McDannald's Rooney 1, Casa Blanca gr, dr 5200 ft. Transwestern's Dunlap 1, sur 181, fsg 5107 ft. **Lavaca**—Wynne Crosby's Graff 1, Jack sur, dr 4500 ft. **Live Oak**—Holland's West 2, Ragland sur, dr 3300 ft. Turner's Federal 1, Turner sur, dr below sur csg. Wellington's Sanger 1, sec 349, wor. **Nueces**—Seaboard's Chapman 1, Corpus Christi gr, sp. Texas' Little 1, Little sur, pits dug. **Refugio**—Austin & Heard's Hunsdon 1, Lopez sur, ru. Coronado's Rooke 1, Bonnie View subd, testing 5960 ft. Holland's Peck 1, Bonnie View subd, old well reistated, prep perf csg at 5320-40 ft. **San Patricio**—Bennett's Ivey 1, Pauls subd, cor below 5400 ft.

LAREDO DISTRICT

Duval—Anderson's Volpe 1, Mesquite gr, sp. Appell's Rogers 1, Mesquite gr, dr 2800 ft. Daubert & Gorman-Yoakum's Corbett 1, sur 176, set sur csg. Magnolia's Duval Ranch 1, sec 81, dr 2200 ft. Pearl's Smith-Corkill 1, sur 491. Sun's Brueggemann 2, sur 288, dr 3900 ft. **Jim Hogg**—Hamilton's Holbein 1, Las Animas gr, dr 2900 ft. Henshaw's Martinez 1, sec 38, dr below 2700 ft. **McMullen**—Kirby's Chylek 1, Hernandez sur, sd 1210 ft. Spice's Edrington 1, sur 57, cor 1900 ft. **Starr**—Magnolia's Fee-Guerra 1, Santa Cruz gr, dr below 4900 ft. Sun's McKinney 1, sur 242, testing 4858 ft. Zimmerman's Starr 1, por 89, dr 2915 ft. **Webb**—Jones' Bruni 1, Albercas gr, dr 2600 ft. Mac-Bill's Trafton 1, sur 281, sp and set sur csg, mi heavier rig. O'Byrne's Lacy 1, sur 2050, dr 2600 ft.

SAN ANTONIO DISTRICT

Atascosa—Stanley Schumann 1, Stephens Ranch, dr 1025 ft. **Bastrop**—Franklin Thaxton and Yarrington 2, M. Bangs sur, sd 1725 ft. Paul Teas' Grizzard 1, Andrew Graham League, dr below 6550 ft limestone. **Bexar**—Blackburn 1, Miller, sur 234, ru mud pumps. Gilpin's Nieman 1, sd 40 ft. Philtop's Patton 3, Fernando Rodriguez sur, td 1111 ft, cored soft Taylor 1108-11 ft, set casing, swabbing. Ridder's Ridder 1, Barrera sur, lcn. **Blanco**—Johnson's Glasscock 1, sec 50, drlg hard lime 840 ft. **Caldwell**—Dye's Voight 1, Watkins sur, sd 1500 ft. Nytex' Bridges 1, Floyd sur, dr 300 ft. Tinkle's Blackwell 2, Roe sur, td 2312 ft, tubing dropped in hole, fishnig. **Frio**—Humble's Schley 1, dr 3975 ft. **Guadalupe**—Hamill & Hamill's Zuehl 1, Duran sur, dr 445 ft. King's Rosenbrock 1, Duran sur, dr 610 ft. Williams Weber 1, Torres sur, dr 1100 ft. **Kendall**—Dorsey' Flannagan 1, Sweeney sur, td 350 ft, sd. Millican & Norman's Werner 1, sur 781, td 915 ft, pumped out wtr rec 7 bbls oil, acidized with 1000 gals, under 500 lbs press, pumping off acid wtr. Reed's Marquart 1, Traviesso sur, td 600 ft, in wtr sand, pulled casing, underreaming, will run 8-inch csg. **Kimble**—Phillips' Mudge 1, CCSD&RGNG sur, dr 2025 ft. Plateau, Bolt 1, Jones sur 42, dr 1625 ft. Plateau's Davis 1, sur 44, dr 725 ft. Plateau's Hunger 1, Dufner sur 43, dr 1600 ft. **Lee**—Perderson's Brown 1, Hudson sur, dr 3400 ft. Tarver's Lawhon 1, td 3345 ft, set 5½ in at 3127 ft, woc. **Maverick**—Lockhart's Asbrook 1, sur 83, td 3267 ft, recenemting sur csg, prep dr below td. Wellington's Chittim B-1, I&GN sur, dr 2695 ft. **Medina**—Cromwell's Tondrie 1, sd 1336 ft, td through serp. Killian Cruseturner & Martin's Wiemers 1, sur 51, dr 500 ft. Stieren's Hoeglin 1, sur 335, dr 1025 ft. **Travis**—R. F. C. Oil Co.'s Jones 1, Hornsby sur, dr 1300 ft. **Williamson**—Anderson's Teichelman 1, Jett sur, dr 2400 ft. Coffield's Poe 1, Owen sur, dr 1600 ft. Gaffey' Fuchs 1, Bradley sur, lcn.

TEXAS GULF COAST

Brazoria—Sterling's Kramer 1, flank well at Stratton Ridge, T. W. Grayson sur, dr salt 5050 ft. **Galveston**—Sun's Cade 1, Bolivar prospect, A. Dickson sur, abn 8805 ft. **Grimes**—Hubert Holt's Greer 1, Carlos area, sd 2761 ft. **Jefferson**—Geo. Echol's American Nat'l Bank 1, Lovell Lake area, J. J. French sur, dr shale 3276 ft. **Matagorda**—Ohio Oil Co.'s Cornelius 1, North Markham prospect, P. C. Yarbough sur, setting csg 7760 ft. **Montgomery**—W. L. Todd's Martin 1, s of Montgomery, M. Landrum sur, abn 4215 ft. **Newton**—Republic's Sabine Tram Co. 1, Northwest Starks prospect, I. Garner sur, dr shale 5184 ft. **Washington**—Mt. Selman Oil Co.'s Pohlmeyer 1, ne of Brenham, A. Kuykendall sur, lcn. Speed Oil Co.'s Makousky 1, Greenvine area, D. McIntyre sur, dr shale 4419 ft.

MOUNTAIN STATES

MONTANA

Choteau—Security Petroleum Co.'s Johnson 1, cne 23-26n-3e, dr 2036 ft. **Judith River**—Fletcher P. Hunt's Hobson 3, nw se ne 30-14n-15e, dr 1825 ft. Hunt's Hoven 1, se ne nw 30-14n-15e, mi spudder. **Teton**—California Co.'s Unit 1, ne se sw 26-27n-9w, dr 800 ft. Gulf States Oil Co. and Zodiac Oil Co.'s Wallenstein 1, sw sw sw 5-27n-9w, fsg 2525 ft.

NEBRASKA

Sioux—Felmount Oil Corporation's Kinnion 1, csw ne 22-27n-55w, sd 6505 ft. Union Oil Co.'s Buckley 1, nwc se se 15-28n-55w, dr by tools at 5200 ft.

NORTH DAKOTA

Williams—California Co.'s Kamp 1, cnw ne 3-154n-96w, sd 10,281 ft with dr stem frozen on bottom and parted at 3300 ft.

WYOMING

Carbon—Cunningham Oil Co.'s Union Pacific-Fee 1, nw se ne 21-22n-78w, mi rotary. Cunningham's Wolfe-Union Pacific 1, se nw sw 7-23n-78w, wo dr equipment. **Niobrara**—W. A. Maupin's Berggren 1, nw 23-35n-63w, dr 1500 ft red beds. **Platte**—Bill Griffin et al's 1, ne se ne 18-30n-67w, spd. **Sublette**—Frontier Petroleum Co.'s 1, se se sw 1-28n-114w, dr 3100 ft shale. Wyoming Petroleum Co.'s Charles Budd 1, cne ne 10-29n-113w, dr 748 ft.

High tax rates retard use of automobiles

That high gasoline tax rates tend to discourage use and enjoyment of automobiles is indicated in a recent study of the American Petroleum Industries Committee.

In 26 states which did not increase their gasoline tax rates since 1930, it was found that consumption of gasoline gained 35 percent more than it did in the 22 states which increased their tax rates. It was also found that during the depression-low years of 1932 and 1933, gasoline sales diminished more in the tax-raising states than in those which made no increase in the tax rates.

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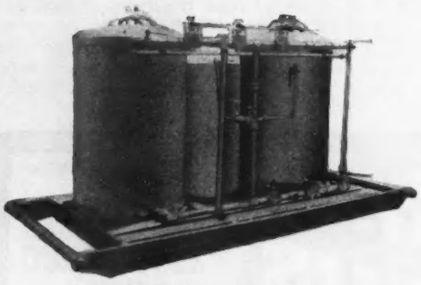
NEW PRODUCTS FOR THE FIELD
Machinery • Tools • Equipment

WATER SOFTENER
Superior Manufacturing Company

Superior Manufacturing Company, Amarillo, Texas, has developed a water softener for treating water before it is fed into boilers.

The water softener consists of a sand filter unit, softening unit and brine tank, all mounted and connected together on skids in one unit, easily moved from one location to another. The sand filter removes all mud and suspended matter from the water before the water passes through the softener. Regardless of how muddy the water, the sand filter unit prevents mud getting into the softening unit.

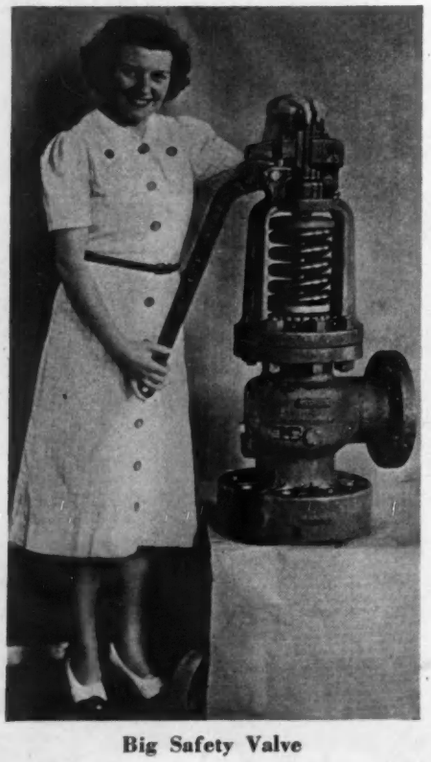


Superior Water Softener.

HIGH PRESSURE SAFETY VALVE
Consolidated Safety Valve Division

Consolidated Safety Valve Division of Manning, Maxwell & Moore, Inc., Bridgeport, Conn., announces the completion of a new line of safety valves for elevated pressures and temperatures (2500 pounds at 1000° F.).

These new valves are to be installed on the highest pressure commercial steam boiler ever built in this country (over 2200 pounds W.S.P.).



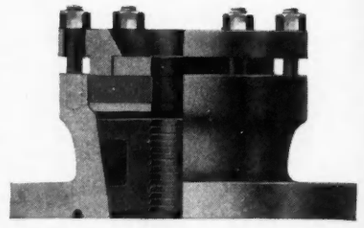
Big Safety Valve

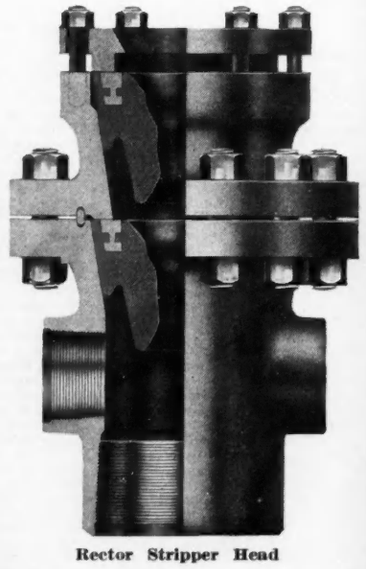
Special alloy steels with low coefficients of expansion have been selected for the bodies, bonnets, springs and trim so that these valves will provide the same safe performance at this new high in operating conditions that is regularly produced in safety valves for 300-pound boilers. Bodies and bonnets are assembled with through bolts to prevent "freezing" at high temperatures. The trim of these valves is treated stainless steel. Constant seat diameter is insured by a new type of bevel seat in which the actual contact bearing between the seat and disc is always at the lowest portion of the seat surface. The single ring type of blowdown control is used. Note the thickness of the inlet flange, which is the new 2500-pound standard.

The builders state that this valve is a continuation of the development cycle started 80 years ago when the company produced safety valves to protect the boilers used to run the first steam engines built in America. In 1926, the makers claim they installed the country's first high-pressure boiler for developing and testing valves for contemplated high pressure jobs.

STRIPPER TYPE HEAD
Rector Well Equipment Company

Rector Well Equipment Company, Fort Worth, Texas, has recently placed on the market a new type stripper tubing head, which is designated as "SSC" and "SSS"'. This new head is built on the series 600 API flange and is offered in 7-inch and smaller casing size. It is made either S. A. E. 3130 chrome-nickel cast steel or alloy cast iron.





Rector Stripper Head

This new head differs from the conventional stripper heads in that provision is made for the use of two neoprene strippers. When conditions warrant, the addition of a second stripper serves as an extra safeguard. Also when the first stripper becomes worn and would ordinarily need replacing while moving tubing in or out of a well under pressure, a second can be added without removing the first.

After the tubing has been run and landed, the top stripper is replaced by a set of slips, for suspension, and packing gland and packing for a seal above the slips. The packing is distorted independent of the slips so that it will continue to seal regardless of any settling of the slips.

PUMP STROKE CONTROL
Gustin-Bacon Manufacturing Company

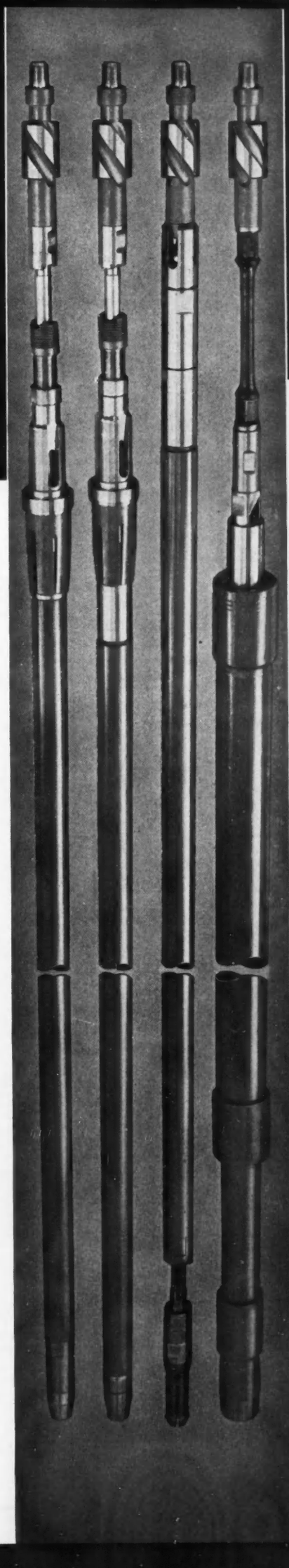
Gustin-Bacon Manufacturing Company, Kansas City, Missouri, has recently placed on the market a new oil field product known as the Strokontrol.

The Strokontrol is an intermittent pumping device to be used on part time oil wells. It can be adjusted so as to pump the well an effective number of hours slightly greater than the pumping off time, but distributed over the 24-hour period and without changing the lifting velocity.

The Strokontrol is installed very easily between the central power or beam well back crank and the knock-off post connecting the pull rod line to this source of power.

Increases in daily production of from 10 to 50 percent have been obtained. This is due to the fact that the Strokontrol allows the fluid to be pumped from the hole at

FINE PARTS GIVE LONG LIFE TO AXELSON PUMPS



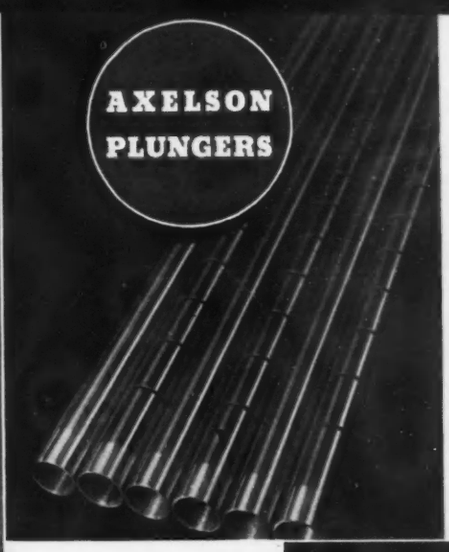
It's the little things that add up big. Twenty-five millionths of an inch is too little to be seen on a scale, but it's the limit in passing Axelson balls for size and roundness. Comparable accuracies are built into Axelson seats so that when the ball seats, it permits the maintenance of an almost perfect vacuum.

The faces of Axelson liners are so accurately squared and polished that when a dozen or more are stacked end on end they make an absolutely straight line and are air-tight at the joints.

Axelson plungers are as straight as a beam of light, and are polished to a mirror finish. This makes them work in the liner assembly with the least possible friction and loss of expensive power.

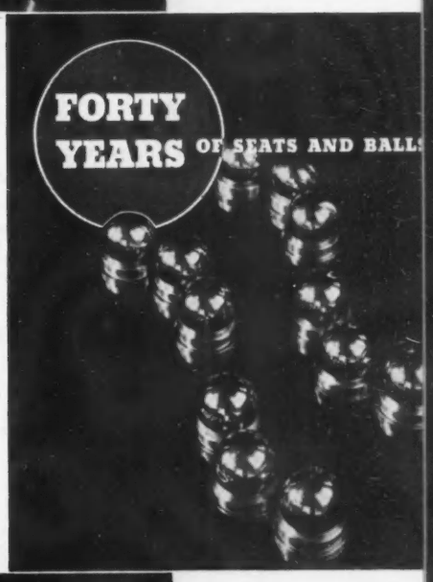
Add up all the Axelson accuracies in little things and you get the big advantages of Axelson practical performance by which you profit in low cost of production and minimum loss of time. Producers in every oil field in the world found that out long ago—to their profit.

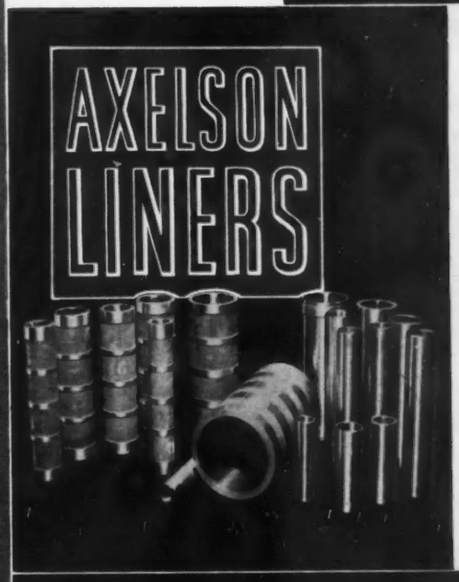
THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY



It takes a sixteen-page booklet to tell the mere outline of how Axelson plungers are made and why. It takes hundreds of thousands of dollars' worth of machines and equipment to make Axelson plungers the way they are. It has taken forty years of constant study and engineering progress to arrive at the refinements that are found in this single part of an Axelson pump, but it is these refinements and the refinements in all other Axelson pump parts that bring economy and dependability in the lifting of oil everywhere.

Seats and balls are responsible for the heart action of deep well pumps. Twenty to sixty thousand times a day the ball in every cage of a pump comes down *smack* on the seat under a pressure that may be as high as 3000 pounds to the square inch. It takes real metal in both seat and ball to stand up. In forty years, Axelson has found not one metal and not one process with which to meet this condition, but has found many metals and many processes with which to meet any condition.





In the casting of liners, Axelson operates its own *controlled* foundry, in which one single piece of equipment is worth three or four times the value of an average trade foundry. It takes a thirty-six page booklet to tell how Axelson originated the first interchangeable liner and how Axelson liners are now made. There's a reason for everything that is done in the Axelson foundry, and all the reasons added together mean longer life and more economical production when you use Axelson pumps.

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approximately the rate of flow into the hole, maintaining the proper fluid level.

The material used in the Strokontrol has been carefully selected to promote long life. While the timing mechanism as a group is new, the component parts have been in common usage on machines for years. The heart of the Strokontrol timing mechanism is composed of a latch, a cam and overrunning clutches controlling the connecting and disconnecting of the well to the source of power. The number of power strokes required to rotate the cam 180° determines the pumping strokes, and similarly the number of power strokes required to rotate the cam the other 180° determines the number of off strokes. The pumping and off strokes, independently of each other, can easily be set for 3, 4, 6, 8, 12 or 24 strokes, permitting ratios between pumping and off strokes of from a ratio of 1 to 8 to a ratio of 8 to 1.

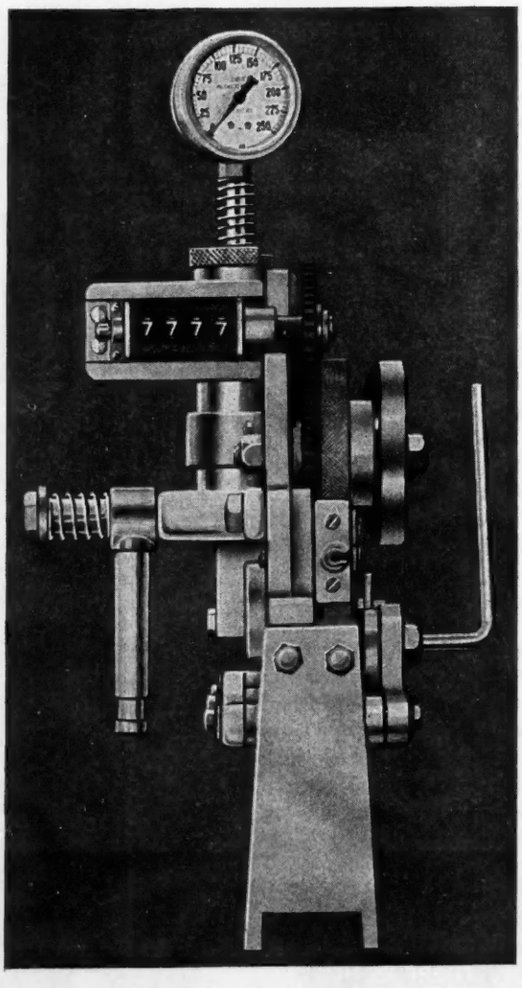
The Strokontrol eliminates the hazards involved in the present method which requires the pumper to hang on and off his wells manually.

WEIGHT INDICATOR AND MEASURE-METER

Frank Mathey Machine Works

Frank Mathey Machine Works, 315 East 4th Street, Tulsa, announces a new "Two-in-One" Indicator combining into a single unit a Weight Indicator and a Measure-Meter.

The unit is a compact machine, 17 inches long, 18 inches high and 11 inches wide, weighs 40 pounds. It is installed on truck or automobile and permits simultaneous reading of both depth and weight, as unit is always in full view of



Mathey Indicator.

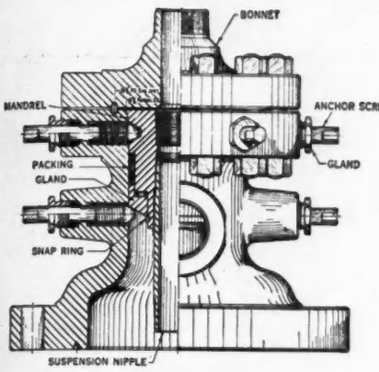
the operator. The capacity of the machine is 10 to 300 pounds and 10,000 feet. The "Two-in-One" Indicator contains a special aluminum body, is equipped with heat treated rollers mounted on ball bearings, hardened U-guide blocks, and flexibility is achieved through tension springs and eccentric knee-action construction. The machine is sold without weight indicator where operator wants only measuring device.

TUBING HEADS

The National Supply Company

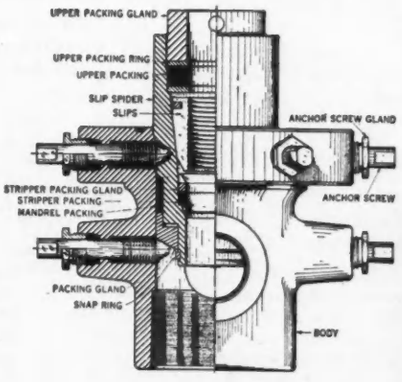
National Type GH Tubing Heads, described in a late bulletin of The National Supply Company, Toledo, Ohio, are designed for use on wells which are drilled under pressure or are expected to flow for a long time. With this type of head the operations, which necessitate the raising and lowering of tubing, can be performed under pressure, making the killing of flowing wells unnecessary.

The stripper or pressure drilling equipment is flanged to the upper end of the tubing head when drilling or manipulating tubing. When the tubing has been run the stripper attachment is removed from the well and the Christmas tree installed. One set of stripper equipment can be used to service a number of wells. It is unnecessary to have a master valve on the well. When running tubing, a tubing spear or closing tool is used to plug the inside of the tubing.



GH-4 TUBING HEAD

The tubing hanger is held in place by anchor screws which securely anchor it in place and effect a seal independent of the weight of the tubing. A reinforced ring of Neoprene is compressed in the direction of pressure by the two lower screws and makes a positive seal between the body and the hanger. Neoprene packing is not decomposed by oil and will last indefinitely.



GH-3D TUBING HEAD

The Type GH-3 has threaded connections and outlets. The Types GH-4 and GH-5 are identical with the GH-3 except that they are both flanged on the lower end. In addition the GH-5 has flanged outlets. When a slip hanger is used in the bodies of Types GH-3, GH-4, and GH-5, these are known as GH-3D, GH-4D, and GH-5D, respectively. Type GH-3D accompanying, the packing is both above and below the slips. Tubing packers can be set when this slip hanger is used.

CABLE TOOL BUTANE DRILLING ENGINE

Riise Engineering Company

Riise Engineering Company, Columbiana, Ohio, has placed on the market a butane vaporizer, with which its own and other makes of engines may be converted to butane fuels.

The Riise butane vaporizer turns the liquid into gas during cold weather. All liquid is vaporized before getting to the gas regulator. The same mixing valve may be used for butane, natural gas, propane or any mixture of them. To change to another fuel it is necessary only to make a simple screw adjustment. It is regulated so that there is a 1-ounce final pressure for butane, and a 2-ounce pressure for natural gas.

The Riise cable tool drilling engine unit, to which the butane vaporizer has been adapted, is a six-cylinder, heavy-duty, high-speed unit, with three speeds controlled from the derrick floor by a single lever. The forward high and reverse gears have a 5 to 1 reduction, while the low forward speed has a 10 to 1 speed reduction. Four sizes of engines, ranging in power from 100 to 170 horsepower, are available.

MONO-CAST DOUBLEX SIMPLEX PIPE

PHOTO shows 12" Mono-Cast Doublex Simplex Pipe being installed for high-pressure natural gas service to the new plant of the Aluminum Ore Co., near Mobile, Ala. The line lay through swampy river bottom land, where quicksand and water were frequently encountered and surmounted by the flexible leak-proof Doublex Simplex joint. For literature on Cast Iron Pipe for super service in gas and oil transmission and distribution, address Acipco office nearest you.

AMERICAN CAST IRON PIPE COMPANY

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This Week with the Industry's EQUIPMENT SUPPLIERS

Jones & Laughlin Southwest Sales Headquarters at Houston

Establishment of a new district sales office for the Southwest at Houston and the appointment of Frank D. Winslow as district sales manager is announced by Jones & Laughlin Steel Corporation, Pittsburgh.

The importance of the Southwest as a growing factor in steel consumption prompted Jones & Laughlin to establish Houston as a mill depot for a complete stock of oil country tubular goods as a means of better service to its customers. Now the establishment of Houston as a district sales office with a branch office at Dallas makes possible a better service to consumers of all steel products in this territory.

The corporation has had branch offices in Houston and Dallas for many years and the present staffs will be enlarged to cover this territory which will include Texas and New Mexico.

Winslow, a newcomer to the organization, has been engaged in sales work since leaving the University of Nebraska in 1920. He has represented various steel companies in the Chicago territory and the Southwest, and since 1933 has been in the Southwestern territory for a large Mid-West steel manufacturer.

Curt C. Noel, district sales representative, will be in charge of the Dallas branch office, which will be under the jurisdiction of Winslow. Noel has been with Jones & Laughlin in the Southwest for many years.

FRANK D. WINSLOW
Southwest Sales Manager for Jones & Laughlin

Landis Service Engineer Flies to South America

J. R. Funk, service engineer for Landis Machine Company, Waynesboro, Pennsylvania, in Oklahoma and Texas, left Miami, September 3, via Pan American Airways, for a trip through South America. Funk will service Landis die heads and Landis thread cutting machines in the oil fields, as well as in the industrial shops throughout South America. His work in Oklahoma and Texas will be taken over by Wm. B. Baker.

F. D. Newbury Heads New Westinghouse Products Division

Frank D. Newbury has been appointed manager of the new products division of Westinghouse Electric & Manufacturing Company. George H. Bucher, president of the company, announced his appointment as successor to Herbert Hygatt Wilcox who died July 28.

In addition to this development of activities for Westinghouse in new fields Newbury will continue his present duties as economist for the company.

Born in Brooklyn, and graduated as a mechanical engineer from Cornell University in 1901, Newbury has occupied a number of positions from apprentice to general manager of machinery engineering over a period of 30 years.

Besides carrying on his engineering design work he edited the Electric Journal when it was established in 1904 and was president of the Electric Club (now the Westinghouse Club) during 1906 and 1907.

From 1918 to 1930 he was active in the American Institute of Electrical Engineers, as a director from 1918 to 1922 and as a member of the standards committee and rotating machinery committee. He was one of the representatives of the A.I.E.E. on the American Standards Association.

In 1935, Newbury became assistant to the vice president, in connection with budgets and other administration problems, and later economist.

Farrel-Birmingham Company Making Foundry Improvements

Construction of additional foundry building space has recently begun at the Ansonia (Connecticut) plant of Farrel-Birmingham Company. The new building will add 4000 square feet of floor area as part of a program of rearrangement of the Ansonia foundry department for increased efficiency and output.

Included in the new equipment to be installed is a 15-ton traveling crane, a large molding machine and a modern sand handling system for the elimination of dust and for reclaiming sand from molds used in the Randupson process.

The new construction and rearrangement will be completed by December. It is expected to provide not only improved facilities for greater efficiency and larger output but also to decrease congestion and improve working conditions.

Lucey Export Corporation Kibele Export Representative

Kibele Manufacturing Company, Dallas, Texas, announces appointment of Lucey Export Corporation, 3505 Woolworth Building, New York, as its exclusive export distributor for the complete line of Kibele oil field products. Chief among these are the tubing catcher, swab, valve-in-head packer and boiler feed pump pistons. Lucey Export Corporation is one of the pioneer companies selling oil field equipment abroad and has representatives in every principal foreign field.

Ed Robertson, executive vice president of Houston Oil Field Material Company, returned to Houston recently from a vacation trip in California and the Rocky Mountains, accompanied by Mrs. Robertson, who stopped off at Denver for an extended vacation before returning home.

Exhibit Soil Corrosion Specimens at National Bureau of Standards

Manufacturers and users of pipe material and protective coatings will be interested to learn of an exhibit which has been arranged in the Industrial Building at the National Bureau of Standards, Department of Commerce, to show the effect of corrosive soils on specimens of pipe and protective materials.

K. H. Logan, who is in charge of this work at the Bureau, explains that most of the specimens have been buried for four years in 15 soils differing widely in their characteristics. These samples of pipe include several varieties of ferrous materials as well as copper, brass, and bronze. Soldered and brazed joints, protective materials, and pipe made of a composition of cement and asbestos are also represented.

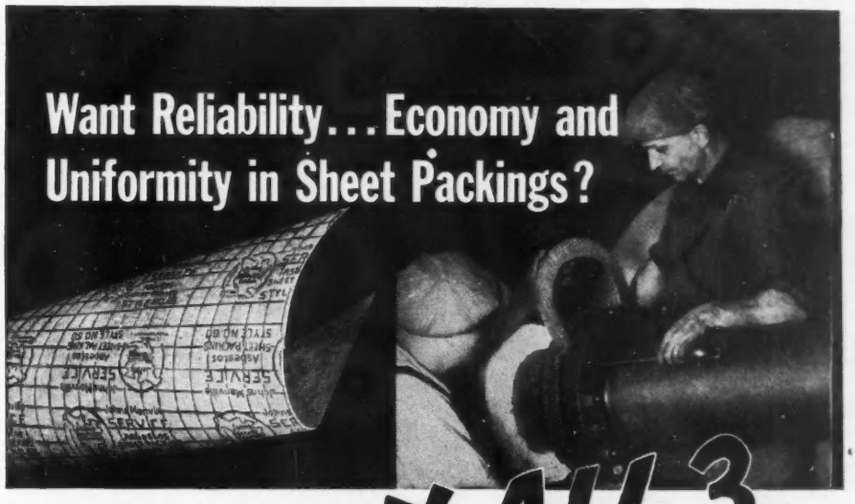
W. J. Wyatt Dies In Dallas Hospital

W. J. Wyatt, president, Wyatt Metal & Boiler Works, Houston and Dallas, Texas, died in a Dallas hospital August 26 following a heart attack. He was 72 years old. Born in Tennessee, he came to Texas at the age of 23 and started working at hand labor in a Dallas metal shop. He attended night school and saved his earnings, and shortly founded his own small metal and boiler shop, the outgrowth of which is one of the largest organizations of its kind in the country.

Buckeye Traction Ditcher Chairman Passes On

W. F. Hosler, chairman of the board of directors and former president of The Buckeye Traction Ditcher Company, Findlay, Ohio, died at his home in Findlay on August 20, 1938, at the age of 78.

As a member of the board of directors and as president of the company since 1913, Hosler was long active in the affairs of his company. In January, 1937, he was elected chairman of the board of directors. Though confined to his home for about a year prior to his death, he continued active participation in industrial and civic affairs.



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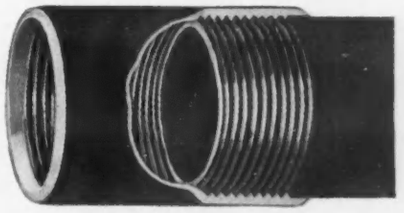

Rigid laboratory tests prove that "X-L" Tubing Couplings withstand internal pressure many times greater than rated capacity and remain in perfect shape, fit for actual use. Our patented process of recessing means concentricity of recess in combination with threaded section of coupling, assuring accuracy in alignment of joints. Made to A.P.I. standards.

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CATALOGS . . . BULLETINS

Helpful Publications Which Manufacturers Will Be Glad to Send Free for the Asking

Sucker Rods

Axelson Manufacturing Company, Los Angeles, has published a well illustrated 56-page booklet which tells the story of sucker rod manufacture from mill to well. The booklet is entitled "Not How Much . . . But How Well."

Breathing Apparatus

Mine Safety Appliance Company, Pittsburg, Pennsylvania, has recently released a detailed new two-color bulletin describing the new lightweight one-hour oxygen breathing apparatus. The bulletin describes the exclusive double seat oxygen valve and pictures two styles of trunks in either of which the unit is furnished.

Cement Retainer and Casing Bridge Plug

Baker Oil Tool Company, Huntington Park, California, has recently published a new bulletin dealing with the application of cement retainers and casing bridge plugs. This booklet is replete with blue-prints showing various applications and what happens when they are made.

Portable Current Transformer

Westinghouse Electric & Manufacturing Company, has a 4-page illustrated pamphlet which discusses the construction and operation of portable current transformers. Illustrations include type PC-137 portable multi-range current transformer, a series showing method of introducing turns in PC-137 current transformer when used as "through" type; also diagrams showing characteristic ratio curves.

Chains

Link-Belt Company, 307 North Michigan Avenue, Chicago, recently released a new data book No. 1757 on its Silverlink roller chain and sprockets for drives and conveyor uses. This 174-page book contains practical information, application pictures and engineering data. Notes, formulae and tabular data are given on how to select the proper combination of chain and wheels for an efficient drive. Twenty-two pages are devoted to tabulation and uses of Silverlink roller chain on conveyor work.

Grip Tubing Spider

The Bovaird Supply Company, Tulsa, announces the completion of bulletin No. 31, which completely describes the design and operation of its grip tubing spider.

Check Valves

Crane Company, 836 South Michigan Avenue, Chicago, has just issued an eight-page, two color booklet, entitled "Checking Up on Check Valves." The two basic types of check valves are described, their various applications discussed and two entire pages are devoted to cross section views.

Diesel Unit

Chicago Pneumatic Tool Company, 6 East 44th Street, New York, in bulletin No. 769 describes in detail the construction and operation of its new type RHB-100 Diesel engines.

Oil Well Literature

Oil Well Supply Company, Dallas, Texas, has recently issued the following bulletins:

Bulletin No. 182 on No. 9 vertical twin-cylinder steam engine; No. 167-X on renewable rubber bushings for power slush pumps; No. 187 on SC-27-H and SC-35 pumping units; and No. 190 on renewable rubber bushings for double duty fluid valves.

Bulletin No. 193 on 60-inch streamline traveling block; No. 192 on No. 100 crown block; No. 183 on stuffing box casing heads; No. 112-B on No. 50 eccentric-type oil bath geared power; No. 150-A on drill collars; No. 188 on No. 100 and 150-B swivels.

Forgings

Kropp Forge Company, 5301 W. Roosevelt Road, Chicago, has issued a new bulletin, No. 630, which describes its facilities for serving manufacturers of oil field and refinery equipment.

A large stock of carbon and alloy steels of corrosion and high pressure stress resistant analyses are carried on hand to forge casing and tubing heads, wipers, blow-out preventers, valve bodies and fittings.

In addition to the dies carried on hand for forging these parts, the plant is equipped to make dies to specification.

Process Steels

Republic Steel Corporation, Cleveland, Ohio, offers an eight-page folder entitled—"Enduro Stainless and Heat-Resisting Steels and other Republic products for the Process Industries."

To users of stainless steel, this is particularly interesting. The analyses, forms, finishes, suggested applications and recommendations for use of the various types of stainless steel under specific conditions are featured. Illustrations of leading applications, such as still tubes, gas cracking tanks, jacketed kettles, heat exchangers, agitators, funnels and measures, are shown.

The folder is authoritative and practical. Copies can be obtained from Republic Steel Corporation, Advertising Division, Cleveland, Ohio. Ask for bulletin Adv 313.

Wire Rope

Broderick & Bascom Rope Company, 4203 North Union Boulevard, St. Louis, Missouri, has recently published the Driller's Wire Rope Handbook. This booklet covers about everything in the way of wire rope that may be used by the industry, including such items as jerk lines, core barrel lines, and the many miscellaneous ropes that are used around a well.

Combustion Control

Baily Meter Company, Cleveland, Ohio, has published a new 32-page bulletin, No. 102-B, describing the application of the steam flow-air flow automatic readjustment type of air-operated combustion control. In addition to describing and illustrating the various elements of the control system, the bulletin explains fundamental principles involved in controls.

Duplex Switchboards

General Electric Company, Schenectady, New York, has recently issued pamphlet GEA-2892, describing in detail the new Duplex switchboards with secondary control and protective equipment.

National Supply Literature

The National Supply Company, Toledo, Ohio, presents to the industry the following bulletins:

Bulletin No. 201 on rotary rig drives, type RS-244 and type KS-266; No. 188 on drill-stem attachment, type "B"; No. 203 on pumping jacks, type D-25 and D-45; No. 182 on traveling block, type 548-T; No. 193 on Universal rotary hook, type BA-30; No. 184 on drilling reduction gear, type B-DC; No. 200 on concentric disc cranks and counterweights; No. 199 on model "A" Diesel cable tool drilling units; No. 183 on draw works No. 23-10¼-FE; No. 192 on Superior vertical-two-cycle, type "M" convertible Diesel engine; No. 181 on Ideal crown block, type 648-T; No. 197 on Superior vertical two cycle type "M" convertible drilling engines for mechancal driven rotary rigs; No. 202 on pumping power, type G-30; No 198 on various type of tool joints; No. 178 on belting; No. 173 on Ideal-Ajax horizontal type steam engines; No. 195 on hold-over for rod lines; No. 190 on unit pumpers, type "o3" series; No. 180 on Ideal throw-off, type OB-36; No. 179 on unit pumper, type TU 140-G-JD 14 T; No. 186 on Ideal automatic grip elevator and hinged spider, type "S"; No. 194 on sucker rods; and No. 71-A on Ideal power driven slush pump, type C-350.

No. 174-A on Superior vertical two-cycle "FB" gas engine; No. 206 on National stripper attachment, type AH-2; No. 207 on National stuffing box casing head, type B; No. 205 on Ideal alignascope, used to detect misalignment of drill stems, drill pipe, drill collars, etc.; No. 209 on Superior vertical two-cycle type "E" gas engine; No. 208 on Ideal rotary connector, type DA-30.

Gas Engine

Ingersoll-Rand Company, Phillipsburg, New Jersey, has issued a new bulletin, No. 10011, describing the type PVG gas engine which has been designed for use wherever gas is available as a fuel. This 25-page bulletin is profusely illustrated and contains specification and installation data in addition to several cross sections and tables.

Steel

Climax Molybdenum Company, 500 Fifth Avenue, New York, has recently published a new book entitled "Molybdenum in Steel," which represents a compilation of useful data on all types of molybdenum steels, both wrought and cast. The book is divided into several sections, including an introduction, and is also provided with a comprehensive index.

Magnetic Starters

General Electric Company, Schenectady, New York, presents a well illustrated pamphlet, GEA-2954, describing the new reduced voltage A-C magnetic starters. This publication on reduced-voltage, oil-immersed starters for general purposes or for use in corrosive atmospheres gives construction details, dimensions and ratings as well as overload-relay data.

Hot-Flow Water Softeners

International Filter Company, 59 East Van Buren Street, Chicago, Illinois, has recently issued a new bulletin entitled "Infilco Hot-Flow Water Softeners for Boiler Feed Water Treatment." The literature is well illustrated and contains information as to installations and results obtained.

Diesel Tractor

Caterpillar Tractor Company, Peoria, Illinois, in a new bulletin, No. 4876, has grouped together the capacities, specifications and mechanical features of its largest Diesel tractor. Printed in two colors, the booklet is profusely illustrated, the pictures showing action view of the Diesel D8 tractor on the job, as well as cut-away views of the engine, fuel system, transmission, final drive, etc.

Bulletin Boards

Mine Safety Appliances Company, Pittsburgh, Pa., has just issued a new informative bulletin describing its specially designed bulletin boards for safety and general bulletins. These bulletin boards are used extensively by both large and small companies for supplementing safety and educational programmes. They are sturdily built of 24 gauge steel, finished in green enamel and are available in either single or double board types.

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Please send me, without obligation, free booklet No.——— described in September 12 issue of THE OIL WEEKLY.

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Squeaks from the Bull Wheel

Touring Is Over

The decrepit old car crept up to the toll bridge. "Fifty cents," cried the gate-man.

"Sold," replied the driver.

Not Privileged

"Are you a member of the college crew?"

"No."

"Then stop stroking me!"

Maiden Nightmare

"What were you screaming about last night?"

"I had an awful nightmare. A man was chasing me and chasing me and chasing me—and he couldn't catch me."

Poor Technique

"I love you terribly."

"You certainly do."

Out of Grandmas

"There's an office boy called John Simpson working here. May I see him? I'm his grandfather."

"You've just missed him. He's gone to your funeral."

Happy

I'm the happiest man in the world. I've the best wife in the country.

Who wouldn't be happy with his wife in the country?

Chance for Third Party

"What do you think of the two candidates for the election?"

"What do I think of them? Well, I'm thankful only one of them can get elected."

With Reservations

"What would you like to do?" the preacher asked.

"Jes' anything," replied the convert. "Ah's ready to do whatever de Lawd axes me, jes' so hit's right and honorable."

Cured

"I understand that Bette has cured her Scotch boy friend of stuttering. How did she do it?"

"She called him up long-distance, collect."

A Prophet

Kipling's "Recessional" is a great poem.

Wonderful, but how did he know Recession was coming?

Bashful

Guide: "Now, we shall see the sacrophagus of King Tut."

Old Maid: "I think I'd better wait here."

Must Agree

The club members were bidding farewell to one who was leaving for Venezuela. In the conversation a friend said: "It gets pretty hot in Venezuela at times. Aren't you afraid the climate might disagree with your wife?"

"It wouldn't dare."

Safe at First

Pat had been out on a "binge" and was riding home on the bus when much to his chagrin the priest sat down beside him. Hoping to hide his condition Pat held a newspaper up in front of his face and pretended to be reading. Finally, a loud "hic" left him unmasked and he decided to lower the paper and take the lecture he knew would be coming. The priest, in turn, was boiling with religious wrath, not deceived by Pat's poor hiding.

"Father," said Pat, "What is the cause of lumbago?"

It was not the opening the priest expected but he replied: "Liquor and fast living, Pat, and you must know that I am not fooled."

"Well," said Pat with some relief, "I was just reading in the paper here that the pope is suffering from lumbago."

Trade

The Longview News carried this advertisement: "For Trade—One producing oil well near Gladewater; will take in exchange a butcher or bakery shop. I want to get back where I belong."

Co-educational!

Every year college deans pop the routine question to their undergraduates: "Why did you come to college?"

Traditionally the answers match the question in triteness. But last year one U. of A. co-ed unexpectedly confided: "I came to be went with—but I ain't yet!"

Good Company

Two farmers met after church as usual, and had this conversation.

"Sold your pig?"

"Yes."

"What'd ye get for it?"

"Thirteen dollars."

"What'd it cost ye to raise it?"

"Paid three dollars for the shoat; five dollars for the lumber in the pen and house, and five more for the feed."

"Didn't make much, did ye?"

"No, but I had the use of the pig all summer."

Imitation

"What animal am I imitating? 99-klonk, 99-klonk, 99-klonk."

"I give up."

"A centipede with one wooden leg."

Yes, Sugar Pudding

"You're lazy, you're worthless, you're bad tempered, you're shiftless, you're a thorough liar."

"Well, my dear, no man is perfect."

Wants a Winner

"Look here waiter, my lobster is without a claw. How is that?"

"Well, sir, they are so fresh that they fight each other in the kitchen."

"Take this one away, and bring me one of the winners."

12,659 TON MILES of WIRE LINE SERVICE

"We have been able to increase the life of our wire line 50% by using the Patterson-Ballagh Wire Line Guide. One line, for example, has given us 12,659 ton miles of service, more than 50% over previous average."

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